

THE ASSOCIATION BETWEEN SEC COMMENT LETTER REVIEW AND ANALYST ETR  
FORECAST ACCURACY

by

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ABSTRACT

The SEC issues comment letters suggesting revisions to firms' tax disclosures with the goal of improving the informativeness of these disclosures. I examine if SEC-prompted revisions to firms' tax disclosures are associated with changes in the informativeness of the disclosures. I use the accuracy of analyst effective tax rate (ETR) forecasts as a proxy for tax disclosure informativeness. I find that SEC-prompted revisions are associated with a decrease in analyst ETR forecast accuracy, indicating a decrease in the informativeness of tax disclosures. However, I find that increased tabular presentation attenuates the decrease in analyst ETR forecast accuracy. Prior literature examines benefits of the SEC comment letter process on the information environment. I extend prior literature on the outcome of SEC comment letter review by identifying reduced tax disclosure informativeness as one potential cost.

INDEX WORDS: SEC comment letter; income taxes; effective tax rate; analyst forecast  
accuracy

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## DEDICATION

I dedicate this dissertation to my parents, David and Karen Ehinger, in appreciation of their constant love and support.

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## CHAPTER 1

### INTRODUCTION

The SEC requires firms to “disclose meaningful financial and other information to the public” in an effort to help users of the information make informed decisions (SEC.gov). The SEC offers guidance to firms on ways to increase the clarity and informativeness of their disclosures. The SEC began its Plain English Initiative in 1998 to help firms design more informative disclosure documents. The SEC comment letter review process is another means by which the SEC seeks to increase the informativeness of financial disclosures. The SEC issues a comment letter to a firm when it requires additional information to understand the company’s facts and circumstances. The letter may simply request additional information so that the SEC can better understand a firm’s disclosure, or it may request changes to current or future disclosures with the goal of increasing informativeness to users of the disclosures.

The SEC often issues tax-specific comments as part of a review, requesting that firms revise future tax-related disclosures. This paper examines firms’ responses to tax comments in SEC comment letters and the relation between SEC-prompted revisions to firms’ tax disclosures and the accuracy of analysts’ effective tax rate (ETR) forecasts. Although prior research suggests that comment letters generally result in an improved information environment, these results may not generalize to tax-related disclosures. Analysts do not always fully incorporate available tax information into their ETR forecasts (Amir and Sougiannis 1999; Chen and Schoderbek 2000; Plumlee 2003; Kim, Schmidt, and Wentland 2015). If analysts *ignore* new tax information, I would not expect to find an association between SEC-prompted changes to tax

disclosures and analyst ETR forecast accuracy. On the other hand, deviations from previous disclosure may confuse analysts, suggesting a *decline* in ETR forecast accuracy. Ex ante, the relation between SEC-prompted changes to tax disclosures and analyst ETR forecast accuracy is unclear.

To conduct my analyses, I use the AuditAnalytics SEC Comment Letter database to identify firms that receive their first tax-related SEC comment letter related to Form 10-K filings between 2004 and 2014. A tax-related SEC comment letter contains comments concerning a firm's compliance with tax-related financial reporting regulations (e.g., FIN 48, APB Opinion No. 23) in its Form 10-K filing. I consider the event year to be the fiscal year in which the SEC completes its review.<sup>1</sup> I classify the two years prior to the event year as the pre-comment letter review period and the two years following the event year as the post-comment letter review period. I exclude the event year from my analyses to allow analysts one year to observe and incorporate information from revised tax disclosures in the Form 10-K filing into their future forecasts. I require that each firm in my sample has at least one observation in both the pre- and post-review periods.

I first address whether firms revise tax disclosures in their Form 10-K filings subsequent to a tax-related comment letter review. Prior research documents that firms revise their disclosures subsequent to non-tax comment letter review. For example, Robinson, Xue, and Yu (2011) find that firms remedy deficiencies in their proxy statement compensation disclosures when prompted by a comment letter. Although firms may respond positively to SEC requests for

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<sup>1</sup> The SEC completes its review by issuing a letter to the firm confirming that the review is complete. AuditAnalytics does not provide the date that the SEC issues its final letter, but it does provide 1) the date of the final correspondence from the firm to the SEC and 2) the date that the SEC releases the correspondence to the public. The SEC releases correspondence no earlier than 20 days after the SEC completes its review. The difference between the date the firm files its final correspondence and the date the SEC releases the information to the public as reported in AuditAnalytics ranges from approximately 30 days to 60 days. I use the date that the firm files its final correspondence with the SEC as the date the SEC completes its review.

more general disclosures, they may be hesitant to revise tax disclosures. Firms may be concerned that changes in tax disclosures will confuse users of the information since the potential for confusion is greater for complex information such as tax information. Firms may also resist changes to tax disclosures if the revisions disclose new information to tax authorities and increase the risk of a tax audit.<sup>2</sup> I begin by providing descriptive evidence on firms' compliance with SEC requests for tax disclosure revisions.

To investigate whether the inclusion of tax-related comments during comment letter review prompts firms to revise their tax disclosures in a manner consistent with SEC comments, I identify tax comments included in correspondence between the SEC and each firm. I use these tax comments to examine disclosures in at least one pre-review and one post-review year for my sample of firms. I develop an indicator variable equal to one if the firm revises its disclosure following comment letter review in a manner consistent with SEC comments, and zero otherwise (*Revise*). Of the 365 firms in my sample, the SEC requests revisions to tax disclosures for 274 firms (75.1 percent). Of these 274 firms, 246 (89.8 percent) revise their tax-related Form 10-K disclosures following comment letter review.

I next examine if analyst ETR forecast accuracy changes subsequent to SEC-prompted revisions to firms' tax disclosures. I define forecast accuracy as the absolute value of the error in an individual analyst's implied forecast of a firm's annual ETR, multiplied by -1. I use analysts' forecasts of pretax income and net income obtained from I/B/E/S to infer analysts' forecasts of the ETR. In my initial regression analysis, I regress forecast accuracy on an indicator variable equal to one for post-comment letter review years and zero for pre-comment letter review years

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<sup>2</sup> For example, Robinson and Schmidt (2013) find that investors reward firms that have less informative tax disclosures with positive abnormal returns, suggesting that they view increased informativeness of tax disclosures as increasing the risk of an audit.

(*Post*), the indicator variable *Revise*, and the interaction of *Post* and *Revise*. If firms that revise tax disclosures following a tax-related SEC review experience an incremental increase (decrease) in analyst ETR forecast accuracy relative to firms that do not revise tax disclosures, I expect a positive (negative) estimated coefficient on the interaction of *Post* and *Revise*.

SEC-prompted revisions to tax disclosures can take different forms. For the 246 firms that revise disclosure, the length of the revised tax disclosures increases by an average of 121 words, 161 firms include new numerical information in the revised text, and 47 firms include new tabular information. I next examine if specific types of revisions incrementally increase (decrease) analyst ETR forecast accuracy. I argue that when revised disclosures require analysts to exert more effort to understand the information, they are more likely to misunderstand or ignore it. On the other hand, if firm revisions to future disclosures reduce the amount of effort needed to understand the information, analysts will incorporate more of the information into their forecasts. Prior literature suggests that users of financial disclosures exert more effort to understand information from lengthier disclosures (Miller 2010; Lehavy, Li, and Merkley 2011) and exert less effort to understand numerical (Lundholm, Rogo, and Zhang 2014; Hutchens 2015) and tabular (Lusk and Kersnick 1979; Rennekamp 2012) information. Therefore, I expect increases in the number of words in the disclosure to be associated with incremental losses in ETR forecast accuracy, and increases in numerical and tabular information to be associated with incremental gains in ETR forecast accuracy.

To examine the association between ETR forecast accuracy and the type of disclosure revision, I re-estimate my forecast accuracy model on the sample of firms that revise their tax disclosures following a tax-related SEC review (*Revise* = 1). I include variables to capture the change in the number of words in the disclosure ( $\Delta Length$ ), revisions that add numbers within a

textual disclosure as means of providing additional context (*Numerical*), and an increase in tabular presentation (*Tabular*) resulting from comment letter review. The independent variables of interest are the interaction of *Post* with each firm disclosure characteristic. Again, if SEC-prompted revisions that reflect that particular characteristic are associated with incremental changes in forecast accuracy, I expect a significant estimated coefficient on the interaction term.

My initial regression results indicate that analysts become less accurate in their ETR forecasts following a firm's receipt of a tax-related SEC comment letter, and these results are concentrated in the sample of firms that revise their tax disclosures following a tax-related comment letter review. However, analysts respond differently to different revision characteristics. While I continue to find an overall decrease in analyst ETR forecast accuracy for firms that increase the length or numerical presentation in disclosures, I find that this decrease in forecast accuracy is fully mitigated for firms that increase tabular presentation following a comment letter review. These results suggest that increased tabular presentation of tax information increases analysts' understanding of the information.

This study contributes to three streams of literature. First, this paper contributes to literature examining the SEC comment letter review process. Prior studies document consequences such as general increases in qualitative disclosure properties in Form 10-K filings (Bozanic, Dietrich, and Johnson 2015), an improvement in the information environment for firms that amend their Form 10-K filings (Johnston and Petacchi 2017), and reduced tax avoidance following tax-related comment letter review (Kubick, Lynch, Mayberry, and Omer 2016). I find that an additional and probably unintended consequence of the review process is decreased ETR forecast accuracy when a firm revises its tax disclosures in response to a comment letter review. However, my results suggest that SEC-prompted changes resulting in

new tabular information mitigate this decrease in ETR accuracy. Firms can incorporate the information from this paper when considering how to inform analysts and investors through future tax disclosures, particularly with respect to the tabular modifications associated with increases in ETR forecast accuracy.

Second, this paper contributes to the literature examining factors that influence analysts' ETR forecast accuracy. Prior studies find that forecast accuracy decreases with changes in tax regulation (Chen and Schoderbek 2000; Plumlee 2003) and tax-related disclosure regulation (Amir and Sougiannis 1999). Analyst ETR forecast accuracy also decreases as firm-specific information processing costs increase (Kim et al. 2015). I extend prior research by identifying revisions to tax disclosures resulting from the comment letter review process as an additional mechanism altering analysts' ETR forecast accuracy. I find that when firms revise tax disclosures in response to a tax-related SEC review, analyst ETR forecast accuracy decreases. However, SEC-prompted revisions that result in tabular changes to a firm's tax disclosures fully attenuate the decrease in ETR forecast accuracy. This result is particularly timely given the FASB's recent exposure draft on income taxes that recommends removing specific tabular requirements from the regulations that guide reporting for income taxes (FASB 2016).

Finally, this paper documents actual changes to the financial statements and relates these changes to changes in analyst ETR forecast accuracy. While Kubick et al. (2016) document that the number of tax mentions significantly increases in the Form 10-K following a tax-related comment letter review, they do not examine the resulting consequences on the information environment. This paper answers Graham, Raedy, and Shackelford's (2012) call for additional research on if and how market participants use tax-related information in firm disclosures.



The remainder of this paper is organized as follows. Chapter 2 includes a general discussion of the SEC comment letter process. Chapter 3 presents a review of the literature and hypothesis development. Chapter 4 presents the research design and sample selection. Chapter 5 presents the results, and Chapter 6 presents robustness tests. Chapter 7 concludes.

## CHAPTER 2

### BACKGROUND: THE SEC COMMENT LETTER PROCESS<sup>3</sup>

The SEC reviews public company filings at least once every three years, consistent with the requirements of the Sarbanes-Oxley Act of 2002 (“SOX”). The scope of the review depends on various factors, and the SEC does not disclose how it determines the scope of review for different firms. However, SOX Section 408 paragraph (b) lists factors that should be considered in determining the appropriate scope of the review.<sup>4</sup> Recent research finds determinants of receiving comment letters consistent with the factors outlined in SOX Section 408 paragraph (b) (Cassell, Dreher, and Myers 2013; Johnston and Petacchi 2017).

The SEC issues comment letters to firms when the staff identifies areas where the company can improve disclosure. The SEC completes many reviews without issuing a comment letter. Cassell et al. (2013) find that 23 to 37 percent of their sample firms pass through the three-year window without receiving a comment letter from the SEC. The comment letter may ask the company to provide additional information, revise current language, incorporate additional disclosure, or change future disclosures. The company responds to the SEC comment letter, in some cases amends its filings, and in most cases enhances disclosure in future filings.

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<sup>3</sup> This discussion is based on <http://www.sec.gov/corpfin/Article/filing-review-process---corp-fin.html>.

<sup>4</sup> These factors are (1) issuers that have issued material restatements of financial results, (2) issuers that experience significant volatility in their stock price as compared to other issuers, (3) issuers with the largest market capitalization, (4) emerging companies with disparities in price to earnings ratios, (5) issuers whose operations significantly affect any material sector of the economy, and (6) any other factors that the Commission may consider relevant.

Often, company responses to the SEC resolve issues contained within the comment letter. The SEC makes public both the comment letters and company responses for the prior four years.

## CHAPTER 3

### RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

#### 3.1 Firms' Responses to SEC Comment Letters

The SEC issues comment letters with the goal of improving the information environment, often by prompting firms to revise their disclosures. Most firms respond to an SEC comment letter by revising subsequent disclosures consistent with SEC comments. For example, Robinson et al. (2011) document that all firms in their sample revise compensation disclosure deficiencies in their proxy statements following a comment letter review. Bozanic et al. (2015) find that firms receiving a comment letter experience an incremental increase in qualitative disclosure in the subsequent Form 10-K when compared to firms that do not receive a comment letter.

Although most firms revise their disclosures consistent with SEC comments, some may be hesitant to modify their disclosures if they are concerned that the revisions will confuse users. Blankespoor (2012) finds that firms consider the market's ability to use the information in their disclosure decisions. Prior literature suggests that overall increases in the length of disclosures (Lehavy et al. 2011) and lack of comparability across disclosures (Bradshaw, Miller, and Serafeim 2009) increase confusion among users of the information.<sup>5</sup> The potential for confusion is particularly acute for tax disclosures.

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<sup>5</sup> Lehavy et al. (2011) examine analyst forecast properties and find that analysts take longer to generate forecasts, consensus accuracy decreases, and dispersion increases as the length of firm disclosures increases. Bradshaw et al. (2009) find higher analyst forecast error in industries with greater accounting method variability among firms.

Taxes are complex, and firms may resist changes in the presentation of information if they believe that users are comfortable with presentation in the current disclosure. For example, in correspondence dated February 27, 2009, Universal Corporation responded to a request from the SEC to enhance a tax disclosure stating that “[o]ur management believed at the time, and continues to believe today, that this presentation is clearer and more easily understood by investors and analysts... [w]e believe it would be confusing to financial statement users to change the presentation at this time.”

A second impediment to compliance with SEC requests that is unique to tax disclosures is that they reveal new information to tax authorities and increase the risk of a tax audit.<sup>6</sup> Prior research suggests that less informative tax disclosures allow firms to engage in tax avoidance activities with greater impunity. For example, Robinson and Schmidt (2013) find that firms that engage in more tax avoidance adopt less informative FIN 48 disclosures and investors reward these firms with positive abnormal returns.<sup>7</sup>

If firms believe that requested revisions will increase the risk of a tax audit, they are less likely to revise their disclosures even after a comment letter request. They are also likely to resist public disclosure of tax-related correspondence that occurs during the SEC comment letter review process. For example, in a 2006 comment letter, the SEC requested additional information relating to Schering-Plough’s tax reserves, and Schering-Plough responded with a request for (and received) confidential treatment of their correspondence with the SEC. Bozanic et al. (2015) find that firms requesting confidential treatment with the SEC do not experience a

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<sup>6</sup> Prior literature uses the risk of tax audit as a proxy for a firm’s proprietary information costs. Proprietary information costs result from the notion that a firm’s disclosure of information could weaken its competitive position. In a tax setting, including additional information in tax disclosures could weaken a firm’s competitive position when negotiating with tax authorities (e.g., Robinson and Schmidt 2013).

<sup>7</sup> Offsetting this, Kubick et al. (2016) find that the likelihood of receiving a tax-related SEC comment letter increases with tax avoidance and that tax avoidance activities decrease following a comment letter review.

change in qualitative disclosure following a comment letter review. This result is consistent with firms not modifying future disclosures when they request confidential treatment in the SEC comment letter review process.

Thus, while most firms revise disclosures following SEC requests for non-tax information, it is unclear if a tax-related comment letter review will prompt firms to revise their tax disclosures. Firms may be reluctant to revise tax disclosures if they view the changes as potentially confusing to users of the information or increasing the risk of a tax audit. I extend the literature on the comment letter review process by providing descriptive evidence on firms' compliance with SEC requests for tax disclosure revisions.

### **3.2 SEC-prompted Revisions and Changes in Analyst ETR Forecast Accuracy**

If firms do revise their tax disclosures following an SEC request, it is unclear how analysts will respond to the new information. Prior research suggests that, in general, a comment letter review results in more informative financial disclosures, and there are observable changes in the information environment following review. Bozanic et al. (2015) find an overall increase in qualitative disclosure in a firm's Form 10-K following comment letter review.<sup>8</sup> These qualitative improvements are associated with decreased bid-ask spreads and increased analyst following, suggesting an overall improvement in the information environment. Similarly, Johnston and Petacchi (2017) find that firms that amend their filings following a comment letter review exhibit increased earnings response coefficients and decreased abnormal trading volume and return volatility.

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<sup>8</sup> Bozanic et al. (2015) measure aggregate qualitative disclosure using five attributes of annual reports: length, readability, tone, numerical intensity, and forward-looking information.

However, results from non-tax settings may not generalize to tax disclosures. Prior research suggests that analysts view the costs of using all available tax information as outweighing the benefits.<sup>9</sup> For example, analyst forecasts do not fully incorporate signals of earnings persistence provided by tax information in financial disclosures (Hanlon 2005; Schmidt 2006; Weber 2009; Kim et al. 2015). Additionally, as firm-specific tax complexity increases, analyst ETR forecast accuracy decreases (Britten, Gleason, Larocque, and Mills 2016; Kim et al. 2015). Finally, analysts did not incorporate the effect of a one-time tax rate change into their earnings forecasts (Chen and Schoderbek 2000). If analysts *ignore* new tax information, I would not expect a change in analyst ETR forecast accuracy following SEC-prompted revisions to tax disclosures.

Another possibility is that deviations from previous disclosure confuse analysts and their forecast accuracy *declines*. Along this line, Bradshaw et al. (2009) find that analyst forecast accuracy is lower for firms that use more atypical accounting methods as compared to their industry peers. Accounting for income taxes is complex, and users of the information must understand both financial reporting and tax reporting standards (Graham et al. 2012), which may increase the confusion associated with a deviation from previous disclosure. Supporting this, Plumlee (2003) finds that analyst forecast accuracy decreases as the complexity of new tax laws increases.

It is also possible that SEC-prompted firm revisions *increase* analysts' understanding of information in tax disclosures. Prior research suggests that particular tax disclosure characteristics are associated with increased analyst ETR forecast accuracy. For example,

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<sup>9</sup> Prior literature refers to information processing costs associated with an individual's use of available information (Plumlee 2003; Kim et al. 2015). Information processing costs result from the amount of effort that an individual exerts to fully use the information available.

analyst forecast accuracy improves when managers provide consistent ETR forecasts (Kim et al. 2015) and when management's ETR forecasts are free of non-recurring items (Bratten et al. 2016).<sup>10</sup> Analyst ETR forecast accuracy also improves when the income tax footnote contains more quantitative information, fewer complex words, and more forward-looking information with respect to unrecognized tax benefits (Hutchens 2015), all which presumably help analysts understand the tax disclosure.

If SEC-prompted firm revisions to tax disclosures increase analysts' understanding of tax information, I expect a measureable improvement in their ETR forecast accuracy. On the other hand, if comment letter review leads to changes in tax disclosures that confuse analysts, ETR forecast accuracy will decline. Finally, if analysts ignore the new information, ETR forecast accuracy will not change. I do not make a directional prediction on the association between SEC-prompted revisions and analyst forecast accuracy because the impact of the revisions on analysts' understanding of tax disclosures is unclear, *ex ante*. Therefore, I state my hypothesis in the null:

**H1:** Analyst ETR forecast accuracy does not change following SEC-prompted changes to a firm's Form 10-K tax disclosures.

### **3.3 Revision Characteristics and Changes in Analyst ETR Forecast Accuracy**

Disclosure revisions take on many different forms. For example, a firm may elect to supply the requested information by modifying the overall length of the disclosure. Alternatively, a firm may elect to add new tabular information. A firm may also elect to include additional numbers within the text of the disclosure as means of providing additional context to the

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<sup>10</sup> Kim et al. (2015) measure consistency as the standard deviation of the year-to-date ETRs for the second, third, and fourth quarters over the previous two years. Decreases in the standard deviation signal increases in consistency.



disclosure. Given the complexity associated with income taxes, certain revision characteristics may result in analysts understanding more, or *less*, of the information in the revised tax disclosures.

Analysts have limits on their ability to process information (Hirshleifer and Teoh 2003), and prior research suggests that analysts do not fully process all available tax information (e.g., Plumlee 2003; Kim et al. 2015). If firm revisions to future disclosures include disclosure characteristics that require analysts to exert more effort to understand the information, they misunderstand the information or ignore it. For example, prior literature finds a negative association between the length of disclosure and the information environment. Miller (2010) finds an increase in investor uncertainty for firms with longer Form 10-K filings. Lehavy et al. (2011) find that analysts exert more effort to incorporate information from lengthier disclosures into their forecasts and forecast properties suffer in spite of their increased effort. Therefore, I expect analyst ETR forecast accuracy to decrease as a firm increases the length of its tax disclosure in response to a tax-related comment letter. Stated formally:

**H2a:** Analyst ETR forecast accuracy is negatively associated with SEC-prompted changes to the length of a firm's Form 10-K tax disclosures.

Alternatively, increased numerical presentation can increase a user's ability to understand the information. Consistent with numerical disclosures being more understandable, Lundholm et al. (2014) find that U.S. institutional ownership of foreign firms increases with a foreign firm's numerical disclosure. With respect to understanding tax information, Hutchens (2015) finds that as firms increase the numerical information in their tax footnotes, analyst ETR forecast accuracy increases. Therefore, increases in numerical information resulting from comment letter review should lead to an increase in analyst ETR forecast accuracy. Stated formally:

**H2b:** Analyst ETR forecast accuracy is positively associated with SEC-prompted changes to the numerical content of a firm's Form 10-K tax disclosures.

Finally, presenting information in a tabular format increases a user's ability to draw comparisons from that information and use that information in analytical assessments, which should increase a user's understanding of that information. Supporting this, individuals perform better on analytical tasks when information is presented in a tabular format (Lusk and Kersnick 1979). With respect to accounting information, investors' understanding of information in a disclosure also increases with tabular presentation (Rennekamp 2012). As a result, I expect SEC-prompted changes to tabular information to lead to an increase in analyst ETR forecast accuracy. Stated formally:

**H2c:** Analyst ETR forecast accuracy is positively associated with SEC-prompted changes to the tabular content of a firm's Form 10-K tax disclosures.

## CHAPTER 4

### RESEARCH DESIGN

#### 4.1 Research Design: SEC-prompted Revisions and Changes in Analyst ETR Forecast Accuracy

To investigate if SEC-prompted revisions to tax disclosures are associated with changes in analyst ETR forecast accuracy, I follow prior literature examining determinants of analyst ETR forecast accuracy (e.g., Bratten et al. 2016; Hutchens 2015) and estimate the following regression using ordinary least squares:

$$\begin{aligned} ETRAccuracy_{i,j,t} = & \beta_0 + \beta_1 Post_{j,t} + \beta_2 Revise_{j,t} + \beta_3 Post_{j,t} * Revise_{j,t} \\ & + \beta_{4-12} TaxComplexity_{j,t} + \beta_{13-16} GeneralComplexity_{j,t} + \beta_{17-18} InformationEnvironment_{j,t} \\ & + \beta_{19-23} AnalystCharacteristics_{i,j,t} + Year\ fixed\ effects + Industry\ fixed\ effects + \varepsilon \end{aligned} \quad (1)$$

##### 4.1.1 Dependent variable

The dependent variable measures analyst forecast accuracy. It is defined as the absolute value of the error in the individual analyst's implied forecast of a firm's annual ETR, multiplied by -1 (*ETRAccuracy*). Similar to Bratten et al. (2016) and Hutchens (2015), I identify analysts that provide both pretax and net income forecasts in I/B/E/S. I calculate each analyst's implied ETR forecast as the pretax income forecast less the net income forecast, scaled by the pretax income forecast. I employ a similar approach using actual pretax and net income values reported in I/B/E/S to calculate the actual ETR. I use the absolute value of the difference because I am

interested in the magnitude of the change in accuracy, not the sign. I expect a change in ETR forecast accuracy both for analysts that forecast above and below actual ETR. I use the most recent analyst forecast of pretax and net income issued after the third quarter earnings announcement in year  $t$  and before the year  $t$  earnings announcement to eliminate potentially stale forecasts from the sample and reduce the likelihood that additional sources of information account for differences in analyst forecast accuracy.<sup>11,12</sup>

#### **4.1.2 Independent variables**

**Primary variables.** I use an indicator variable, *Post*, to classify observations into a pre-comment letter review period and a post-comment letter review period. I consider the event year to be the fiscal year in which the SEC completes its review. I exclude the event year from my analysis to allow analysts one year to observe and incorporate information from revised tax disclosures in the Form 10-K filing into their future forecasts.<sup>13</sup> *Post* equals one for observations occurring after the event year, and zero for observations occurring prior to the event year. I limit observations to two years prior to and two years following comment letter review. I require that each firm in my sample has at least one observation prior to comment letter review and one observation subsequent to comment letter review for the same individual analyst.

In order to examine the association between analyst ETR forecast accuracy and SEC-prompted changes to tax disclosures, I read tax disclosures included in Form 10-K filings for my sample of firms and determine if firms revise tax disclosures in a manner consistent with SEC

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<sup>11</sup> Rogers and Van Buskirk (2013) document that the majority of firms issue earnings forecasts in conjunction with earnings announcements and the percentage of firms issuing these bundled forecasts is increasing over time.

<sup>12</sup> For example, Firm A issues quarterly earnings guidance. Analyst 1 provides a forecast after the second quarter for Firm A, while Analyst 2 provides a forecast after the third quarter for Firm A. If I select the most recent forecast for each analyst at any point prior to the annual earnings announcement, Analyst 2's forecast incorporates additional earnings guidance that is not included in Analyst 1's forecast.

<sup>13</sup> In my sample, all firms that revise their disclosures do so beginning in the event year.

comments. I develop an indicator, *Revise*, set equal to one for firms that revise tax disclosures following comment letter review, and zero otherwise. If SEC-prompted revisions to tax disclosures are associated with changes in analysts' ETR forecast accuracy, I expect a significant estimated coefficient on the interaction of *Post* and *Revise*. A positive (negative) coefficient on *Post\*Revise* is indicative of an incremental increase (decrease) in analyst forecast accuracy for the sample of firms that revise tax disclosures following comment letter review relative to those that do not revise tax disclosures.

**Control variables.** In order to isolate the marginal impact of a tax-related comment letter review on analysts' ETR forecast accuracy, I control for other influences on forecast accuracy that have been documented in the literature. Bratten et al. (2016) and Hutchens (2015) suggest that analyst ETR forecast accuracy is negatively associated with the complexity of the firm's tax situation. Thus, my first set of control variables relates to tax complexity. These controls are *ETRSurp*,  $\sigma ETR$ , *CompExp*, *PermDiff*, *Foreign*, *RD*, and *TLCF*. I expect analysts' accuracy forecasting the ETR to decrease with year-over-year changes in the ETR (*ETRSurp*), variability in the GAAP ETRs ( $\sigma ETR$ , measured as the standard deviation of the GAAP ETR from year  $t-4$  to year  $t$ ), stock option-related compensation expense (*CompExp*) (Austin 2014), permanent differences between GAAP and tax income (*PermDiff*), foreign operations (*Foreign*), and research and development expenses (*RD*). I expect analyst ETR forecast accuracy to increase for firms that have tax loss carryforwards (*TLCF*) (Dhaliwal, Kaplan, Laux, and Weisbrod 2013). In addition to the tax complexity variables used in Bratten et al. (2016), I include a one year measure of *CashETR* (cash taxes paid scaled by pretax income) to control for a firm's level of tax avoidance. Balakrishnan, Blouin, and Guay (2012) find that firms that engage in greater

levels of tax avoidance have less transparent information environments relative to their peers. This result suggests that analyst ETR forecast accuracy should decrease with a decrease in the level of *CashETR*, or as firms engage in more tax avoidance. However, Balakrishnan et al. (2012) also find that firms attempt to mitigate the transparency problems with increased tax disclosure, which may increase analysts' understanding of tax disclosures for firms with lower levels of *CashETR* (firms that engage in more tax avoidance). Therefore, I do not make a prediction on the relation between *ETRAccuracy* and *CashETR*. Kubick et al. (2016) find evidence suggesting that firms decrease their tax avoidance following a tax-related comment letter review. I include the interaction of *CashETR* and *Post* to control for changes in forecast accuracy relating to changes in tax avoidance following a tax-related comment letter review.

My second set of control variables relates to firm-specific general complexity that prior literature suggests is associated with analysts' earnings forecast accuracy (Balakrishnan et al. 2012). I control for firm growth, measured as the market-to-book ratio (*MTB*), and leverage (*Leverage*), measured as long-term debt scaled by total assets. I also control for *Size*, measured as the natural log of total assets (Atiase 1985), and the firm's level of diversification, measured as the firm's number of segments (*NumSegs*) (Bushman, Piotroski, and Smith 2004).

My third set of control variables measures the general information environment. I control for *NAnalysts*, the number of analysts providing a forecast for the firm in year *t*, because prior research suggests that greater analyst following increases forecast accuracy in general (Lang and Lundholm 1996) and specifically with respect to analysts' understanding of the persistence of ETRs (Kim et al. 2015). Therefore, I expect a positive relation between *ETRAccuracy* and *NAnalysts*. I control for *Guidance*, an indicator variable equal to one if the firm issues earning

guidance in year  $t$ , as a proxy for firms with richer information environments (Hassell, Jennings, and Lasser 1988). I expect a positive relation between *ETRAccuracy* and *Guidance*.

My final set of controls measures analyst forecasting resources, ability, and portfolio complexity (Clement 1999; Clement and Tse 2005). To measure analyst forecasting resources, I include *BrokerSize*, a ratio capturing the number of analysts forecasting for analyst  $i$ 's brokerage firm relative to other brokerage firms. To measure analyst forecasting ability, I include *FirmExp*, a ratio capturing analyst  $i$ 's experience forecasting for firm  $j$  relative to other analysts following firm  $j$ . I also include *GenExp*, a ratio capturing analyst  $i$ 's years of forecasting experience relative to the experience of other analysts. Finally, to measure portfolio complexity, I include *NCos* (*NInds*), a ratio capturing the number of firms (industries) that analyst  $i$  follows relative to other analysts following firm  $j$ . I expect analyst ETR forecast accuracy to increase with forecasting resources and ability and decrease with portfolio complexity. I winsorize all continuous variables and truncate all ETR measures at zero and one. I include year fixed effects and industry fixed effects based on the Fama and French twelve industry classification. Finally, I use White (1980) standard errors clustered by firm in order to control for both heteroscedasticity and serial correlation. Appendix A provides detailed definitions for all variables.

#### **4.2 Research Design: Revision Characteristics and Changes in Analyst ETR Forecast Accuracy**

To examine if different firm revision characteristics are differentially associated with changes in analyst ETR forecast accuracy, I estimate the following OLS regression on my sample of firms that revise tax disclosures following receipt of a tax-related SEC comment letter (*Revise*=1):

$$\begin{aligned}
ETRAccuracy_{i,j,t} = & \beta_0 + \beta_1 Post_{j,t} + \beta_2 Characteristic_{j,t} \\
& + \beta_3 Post_{j,t} * Characteristic_{j,t} + \beta_{4-12} TaxComplexity_{j,t} + \beta_{13-16} GeneralComplexity_{j,t} \\
& + \beta_{17-18} InformationEnvironment_{j,t} + \beta_{19-23} AnalystCharacteristics_{i,j,t} + Year\ fixed\ effects \\
& + Industry\ fixed\ effects + \varepsilon
\end{aligned} \tag{2}$$

The variable *Characteristic* indicates the type of changes a firm makes to its tax disclosures following comment letter review. I include measures of the change in length, increase in numerical content, and addition of tabular information in a firm's Form 10-K tax disclosures.  $\Delta Length$  equals the word count in the revised tax disclosure in the event year less the word count in the original tax disclosure prior to comment letter review. *Numerical* is an indicator variable equal to one if the firm expands text in a disclosure to include new numbers following comment letter review, and zero otherwise.<sup>14</sup> *Tabular* is an indicator variable equal to one if the firm adds tabular information in its revised disclosure following comment letter review, and zero otherwise. If SEC-prompted changes to the length of a firm's tax disclosures incrementally reduce analyst ETR forecast accuracy, I expect a significant, negative estimated coefficient on the interaction of *Post* and  $\Delta Length$ . If SEC-prompted increases in numerical (tabular) content incrementally increase analyst ETR forecast accuracy, I expect a significant, positive estimated coefficient on the interaction of *Post* and *Numerical (Tabular)*.

### 4.3 Sample Selection

I use the AuditAnalytics Comment Letter database to identify firms that receive an SEC comment letter that relates to the Form 10-K filing and contains tax-related comments. I perform

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<sup>14</sup> This variable captures firm revisions that add numbers within a textual disclosure as means of providing additional context. For example, the SEC may ask the firm to expand discussion of year-over-year changes in the effective tax rate by quantifying the impact of items within the discussion.



a search on all comment letters relating to Form 10-K filings using tax issue taxonomies provided by AuditAnalytics to identify tax-related comment letters. Appendix B contains a detailed listing of the primary tax issue taxonomies and any sub-groupings available in the AuditAnalytics Comment Letter database. My sample period begins in 2004, the first year in which SEC comment letter data became publicly available, and continues through 2014. I keep only the first instance in which a firm undergoes a tax-related comment letter review in my sample period.<sup>15</sup> This results in an initial sample of 2,272 firms. I remove six observations where I cannot determine the date that the SEC completed its review and 340 observations missing CIK codes, which I use to obtain Compustat data. Table 1, Panel A shows how I arrive at my final sample of 1,926 unique firms. Table 1, Panel B details the number of tax issue taxonomies addressed in letters received by my firms. AuditAnalytics groups tax comments into five different tax issue taxonomies. Those taxonomies are “Tax expense/benefit/deferral/other”, “Tax rate disclosure”, “FIN 48”, “APB Opinion No. 23”, and “SFAS 109.” The majority of comment letters (1,180 letters or 61.27 percent of the sample) contain one of the five primary tax issue taxonomies, while 620 letters (32.19 percent) contain two tax issue taxonomies. Approximately 6.5 percent of the letters contain three or more tax issue taxonomies.

Table 2 presents the sample selection procedures for my event window data, which spans the two years preceding the event year and the two years following it. My analyses require that firms have information available in both Compustat and I/B/E/S. These requirements result in an initial sample containing 9,182 firm-year and 47,429 analyst-firm-year observations for 1,926 firms. I first remove firms with negative pretax income or negative tax expense because these components make the effective tax rate difficult to interpret. This requirement reduces my

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<sup>15</sup> Since the SEC reviews all public firms at least every three years, firms may receive comment letters for different Form 10-K filings during my sample period.

sample by 263 firms, 3,302 firm-years, and 11,946 analyst-firm-year observations. I require that all observations have the required data in Compustat and I/B/E/S to calculate my dependent variable of interest and control variables. I lose 611 firms, 2,671 firm-years, and 6,866 analyst-firm-year observations that do not have sufficient data. I remove observations where the firm is not present in my sample both before and after comment letter review, reducing my sample by 452 firms, 791 firm-years, and 5,156 analyst-firm-year observations.

FIN 48 became effective during my sample period and resulted in substantial revisions to firms' tax disclosures. Therefore, I remove observations spanning the implementation of FIN 48.<sup>16</sup> This requirement reduces my sample by 183 firms, 755 firm-years, and 6,667 analyst-firm-years. I also require that the same analyst provides a forecast for a firm prior to and following comment letter review to be included in the sample. This screen reduces my sample by 18 firms, 81 firm-years, and 7,204 analyst-firm years. Next, I verify that all comment letters contain a tax-related comment directed at the Form 10-K filing and remove any observations that do not meet this requirement.<sup>17</sup> I lose 34 firms, 136 firm-years, and 624 analyst-firm-year observations. Finally, I remove all event year observations from my sample, which is the fiscal year in which the SEC finalizes correspondence with the firm and the first year in which analysts will have the opportunity to observe the revised Form 10-K disclosures. I remove the event year to allow analysts time to incorporate the new information into their forecasts. Figure 1 illustrates this timeline of events. This screen reduces the sample by 299 firm-years and 1,855 analyst-firm-years. My final sample consists of 365 firms, 1,147 firm-year observations, and 7,111 analyst-

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<sup>16</sup> If the event year is the fiscal year of FIN 48 adoption for a firm, I remove the firm from my sample. I also remove any firm-year that occurs in the FIN 48 adoption year. If, after removing these firm-years, the firm does not have at least one observation occurring both before and after comment letter review, I drop the firm from my sample.

<sup>17</sup> SEC comment letters often contain comments on multiple firm filings (e.g., Form 10-K, Form 8-K, etc.). Therefore, it is possible that firms in my sample receive a comment letter with non-tax comments directed at the Form 10-K filing and tax comments directed at a separate filing.

firm-year observations. On average, each firm in my final sample has three years of data available and six analysts providing pretax and net income forecasts on a yearly basis.

**TABLE 1**  
**Sample Selection Procedures: Firms Receiving Tax-Related SEC Comment Letters**

This table presents the event year sample selection and comment letter distribution for firms in my sample. I identify firms that receive an SEC comment letter that relates to the Form 10-K filing and contains tax-related comments. The sample begins in 2004, the first year in which SEC comment letter data became publicly available, and continues through 2014. I keep only the first instance in which a firm undergoes a tax-related SEC review in my sample period. Panel A presents the sample selection criteria for firms to be included in my sample. Panel B presents a breakout of the number of tax issue taxonomies ("Tax expense/benefit/deferral/other", "Tax rate disclosure", "FIN 48", "APB Opinion No. 23", and "SFAS 109") contained in the SEC comment letters received by firms in my sample.

*Panel A, Sample Selection Criteria for Event Year*

	<b>Firms</b>
Initial SEC comment letter reviews between 10/01/2004 and 12/31/2014	2,272
Firms missing date information	(6)
Firms missing CIK	(340)
Final SEC Comment Letter Sample	1,926

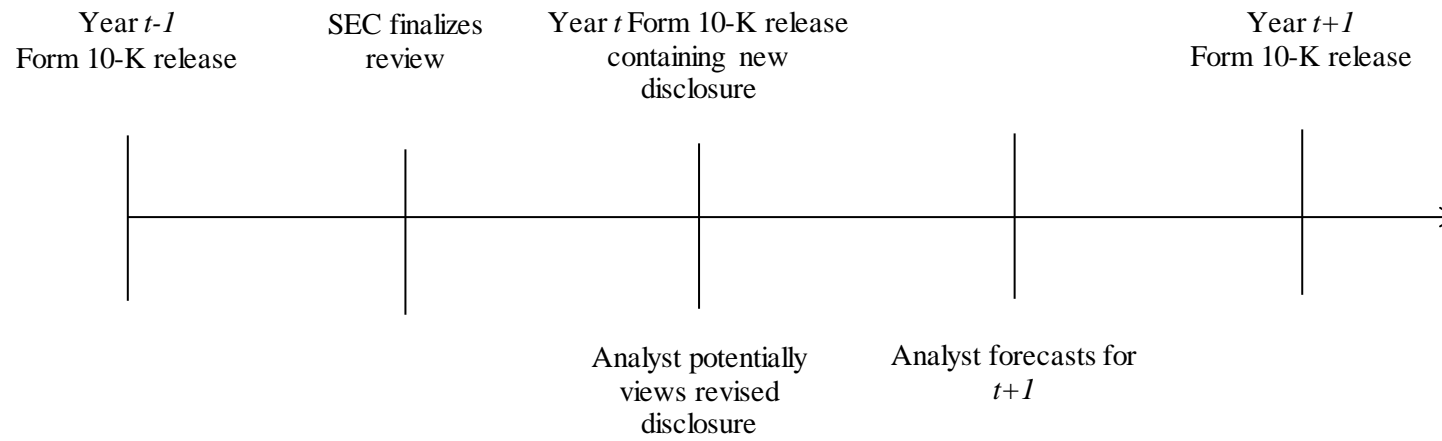
*Panel B, Number of Tax Issue Taxonomies Included in Comment Letters*

	<b>Firms</b>	<b>% of Firms</b>
Letters Addressing One Tax Issue Taxonomy	1,180	61.27%
Letters Addressing Two Tax Issue Taxonomies	620	32.19%
Letters Addressing Three Tax Issue Taxonomies	105	5.45%
Letters Addressing Four Tax Issue Taxonomies	20	1.04%
Letters Addressing Five Tax Issue Taxonomies	1	0.05%
Total Number of Letters Addressing Tax Issues	1,926	100.00%

**TABLE 2**  
**Sample Selection Procedures: Event Window Data**

This table presents the sample selection criteria for firm-year observations in the two years prior to and two years following the event year. I begin with an initial sample of firms receiving their first tax-related SEC comment letter during my sample period. I remove event year observations and observations missing necessary data to compute variables included in regression analyses.

	<b>Firms</b>	<b>Firm- Years</b>	<b>Analyst- Firm- Years</b>
Total observations using [-2,2] year event window for 1,926 comment letters	1,926	9,182	47,429
<i>Less</i> : Observations with pretax income or tax expense less than zero	(263)	(3,302)	(11,946)
<i>Less</i> : Observations missing I/B/E/S data to compute dependent variable			
Missing data to calculate implied ETR forecast error	(498)	(2,125)	(3,038)
<i>Less</i> : Observations missing Compustat data to compute control variables			
Missing data to calculate tax complexity controls	(63)	(389)	(2,393)
Missing data to calculate general complexity controls	(50)	(157)	(1,435)
<i>Less</i> : Observations where information is not available in both the pre- and post-event window for a firm	(452)	(791)	(5,156)
<i>Less</i> : Observations spanning the implementation of FIN 48	(183)	(755)	(6,667)
<i>Less</i> : Observations without the same individual analyst forecasting in both the pre- and post- event window for a firm	(18)	(81)	(7,204)
<i>Less</i> : Comment letters erroneously coded using AuditAnalytics classifications	(34)	(136)	(624)
<i>Less</i> : Remaining event year observations	0	(299)	(1,855)
Final sample for regressions	365	1,147	7,111



**FIGURE 1**  
**Timeline of SEC Review and Firm Revision in Event Year  $t$**

## CHAPTER 5

### RESULTS

#### 5.1 Descriptive Statistics and Correlations

##### 5.1.1 *Firms' responses to SEC comment letters*

Table 3 presents descriptive statistics on the SEC comment letters for my sample of firms. In Panel A, I analyze the number of rounds, number of tax-related comments, and number of revision requests from the SEC for the 365 firms in my sample to provide some insight on the costs associated with engaging in the SEC comment letter process. The average (median) number of *Rounds* for firms in my sample is 1.23 (1.00), indicating that most firms adequately address the SEC's comments in their first response letter.<sup>18</sup> Most SEC comment letters contain 1.55 (1.00) comments relating to income taxes (*TaxComment*). On average, the SEC requests that 75 percent of the firms in my sample (274 firms) revise a tax-related disclosure (*RevRequest*).

Panel B presents findings for the 274 firms specifically asked to revise tax disclosures. The average (median) number of *Rounds* and *TaxComment* are similar to the firms presented in Panel A at 1.26 (1.00) and 1.61 (1.00). Of the 274 firms asked to revise, 190 firms, or 69 percent, revise their tax disclosures consistent with SEC comments in the first round (*Compliance*).<sup>19</sup> Approximately 20 percent of firms, or 56 firms, engage in multiple rounds of

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<sup>18</sup> Cassell et al. (2013) find that the average (median) number of rounds for firms in their sample is 3 (3), while Bozanic et al. (2015) document an average (median) of 1.5 (1.0).

<sup>19</sup> While prior literature does not directly identify firms asked to revise future disclosures by the SEC, Bozanic et al. (2015) separately examine firms requesting confidential treatment on at least part of comment letter correspondence. They fail to find an association between a firm requesting confidential treatment and future changes in qualitative disclosure, which may be indicative of firms not revising future disclosures in response to an SEC comment letter.

correspondence with the SEC (*Negotiation*), suggesting that some firms do not immediately revise their tax disclosures. Kubick et al. (2016) examine changes to tax disclosure following a tax-related comment letter review and find that firms significantly increase the mention of tax issues in the entire Form 10-K, and more specifically, in the MD&A and tax footnote.

Consistent with comment letter review resulting in an increase in the discussion of tax issues, I find that the average (median) disclosure increases in length by 121 (89) words ( $\Delta Length$ ). I also find that almost 59 percent of firms add numerical elements to their disclosures (*Numerical*), and a little more than 17 percent add tabular information in response to the SEC comment letter (*Tabular*).

Table 1, Panel B provides descriptives on the *number* of tax issue taxonomies included in comment letters. In Table 3, Panel C, I provide detail on the *types* of tax issue taxonomies included in comment letters. I use AuditAnalytics' broad taxonomies as a starting point and expand upon them when possible to provide additional detail. I include AuditAnalytics' "APB Opinion No. 23" taxonomy (*APB23*), "Tax rate disclosure" taxonomy (*RateRec*), and "FIN48" taxonomy (*UTP*). In order to provide greater detail on the "Tax expense/benefit/deferral/other" and "SFAS 109" taxonomies, I use more specific tax issue taxonomies identified in a recent PwC study on comment letter tax issues. These taxonomies are business combinations (*BusCombo*), intraperiod accounting (*Intraperiod*), stock options (*StockOption*), transfer pricing (*TransferPricing*), the valuation allowance (*VA*), and other (*Other*) (PwC 2013). I code each comment issued by the SEC in my sample of firms using these six additional PwC tax issue taxonomies. Panel C presents descriptive statistics on the number of comment letters that contain each tax issue taxonomy.



The results are largely consistent across the full sample of firms receiving a tax-related comment letter and those specifically asked to revise future tax disclosures. The most common issue addressed in the comment letter relates to questions on tax consequences associated with earnings of a foreign subsidiary (*APB23*), with 33.97 percent of all firms (42.70 percent of firms asked to revise tax disclosures) receiving this comment. The second most common issue addressed relates to a firm's effective tax rate reconciliation (*RateRec*), with 31.78 percent of all firms (39.05 percent of firms asked to revise tax disclosures) receiving this comment. Other common comments include questions on a firm's valuation allowance and the ability to realize deferred tax assets (*VA*) and questions on a firm's uncertain tax positions or tax reserves (*UTP*).

### **5.1.2 Firm characteristics**

Table 4 presents descriptive statistics for dependent and independent variables used in tests of my hypotheses. Although they are not independent variables in equation one, I also report descriptive statistics for *GAAPETR* and *Assets* since I use these variables in my calculation of  $\sigma ETR$  (defined as the five year standard deviation of *GAAPETR*) and *Size* (defined as the natural log of *Assets*). For comparison purposes, Panel A presents descriptive statistics on the Compustat population of firms covering the same time period.<sup>20</sup> Panel B presents descriptive statistics on the full sample of firms used to test hypotheses one and two. Comparison of descriptive statistics across Panels A and B suggests that firms undergoing a tax-related comment letter review tend to be significantly larger (*Assets*, *Size*) than the average Compustat firm. The average GAAP ETR (*GAAPETR*) for firms in my sample is significantly lower than the Compustat population of firms. I do not find a difference in the volatility of the GAAP ETR

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<sup>20</sup> For comparability to my sample of firms, Panel A excludes Compustat firms missing data to compute control variables and firms with negative pretax income and tax expense.

( $\sigma ETR$ ) or the level of Cash ETR (*CashETR*) between Compustat firms and my sample of firms. The average (median) analyst in my sample incurs an ETR forecast error of 3.52 (0.99) percent.<sup>21</sup>

Table 4, Panel C presents descriptive statistics for the full sample partitioned into pre-comment letter review and post-comment letter review periods. I conduct tests of differences in the mean for each variable. The mean of *ETRAccuracy* is significantly lower in the post-comment letter review period, suggesting that, on average, a tax-related comment letter review is associated with a decrease in analyst ETR forecast accuracy. On average, *TLCF*, *Foreign*, *Size*, *NAnalysts*, *GenExp*, and *NInds* are all significantly higher in the post-comment letter review period. *ETRSurp* is significantly lower in the post-comment letter review period.

Table 5 provides correlations for the dependent and independent variables used in my regressions. I report Pearson correlations above the diagonal and Spearman correlations below the diagonal. I discuss Pearson correlations for brevity. Consistent with expectations, I find that analyst ETR forecast accuracy (*ETRAccuracy*) is decreasing in tax complexity (*ETRSurp*,  $\sigma ETR$ , and *PermDiff*). Analyst ETR forecast accuracy is also decreasing in *CashETR*.<sup>22</sup> I find that *ETRAccuracy* is increasing in firm size (*Size*), analyst following (*NAnalysts*), firm-issued guidance (*Guidance*), and analyst firm-specific experience (*FirmExp*). Analyst ETR forecast accuracy is decreasing in leverage (*Leverage*) and the number of industries (*NInds*) that an analyst follows. Contrary to expectations, I find that *ETRAccuracy* is increasing in research and development expenditures (*RD*) and diversification (*NumSegs*) and decreasing in brokerage firm

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<sup>21</sup> The difference between the average and median ETR forecast error is consistent with concurrent literature. Hutchens (2015) reports an average (median) ETR forecast error of 5.66 (1.49) percent for the sample of observations used in her primary analysis and 3.45 (1.18) percent for the sub-sample of observations with hand-collected disclosure data.

<sup>22</sup> This result is consistent with firms attempting to mitigate transparency problems from increased tax avoidance with increases in tax disclosure.

size (*BrokerSize*). Finally, I find that analyst ETR forecast accuracy decreases subsequent to a comment letter review (*Post*) and is lower for firms that ultimately revise their tax disclosures (*Revise*). While the correlation analysis suggests that analyst ETR forecast accuracy decreases following comment letter review (*Post*), I perform a multivariate analysis to isolate the incremental effect of comment letter review (*Post*) and subsequent disclosure revisions (*Revise*) on analyst ETR forecast accuracy.

## 5.2 Multivariate Results

### 5.2.1 SEC-prompted revisions and changes in analyst ETR forecast accuracy

Table 6, Column 1 presents multivariate results for hypothesis one, which examines changes in analyst ETR forecast accuracy following SEC-prompted revisions to future tax disclosures. A finding that *Post\*Revise* is significant suggests that SEC-prompted revisions to tax disclosures are associated with incremental changes in ETR forecast accuracy. The estimated coefficient on *Post* is negative and significant, indicating that analyst ETR forecast accuracy decreases following a tax-related comment letter review. On average, following a comment letter review, analysts' ETR forecasts are 1.7 percentage points further away from the actual ETR than in years prior to comment letter review. The estimated coefficient on *Revise* is also negative and significant. This suggests that firms that ultimately revise tax disclosures had lower analyst ETR forecast accuracy in the period prior to the SEC's review than firms that do not revise tax disclosures. However, the interaction of *Post\*Revise* is not statistically significant, suggesting that firms that revise disclosures following SEC review do not experience an incremental change in ETR forecast accuracy relative to firms that do not revise their disclosures following SEC review. The *F*-test on *Post* and *Post\*Revise* indicates that these coefficients are

jointly negative. These results suggest that all firms experience a decrease in analyst ETR forecast accuracy following receipt of a comment letter.

My control variables are largely consistent with prior literature. Analyst ETR forecast accuracy generally decreases with increases in tax complexity. ETR forecast accuracy is decreasing in ETR volatility ( $\sigma ETR$ ), stock option-related compensation expenses (*CompExp*), permanent book-tax differences (*PermDiff*), and foreign operations (*Foreign*), consistent with Bratten et al. (2016). Analyst ETR forecast accuracy is decreasing in *CashETR* in the pre-review period and increasing in *CashETR* in the post-SEC review period (*Post\*CashETR*). An *F*-test on the sum of the coefficients on *CashETR* and *Post\*CashETR* is insignificant (untabulated), suggesting that the association between the level of tax avoidance and analyst ETR forecast accuracy is fully mitigated in the period following a tax-related SEC review. Analyst ETR forecast accuracy decreases with firm leverage and increases for firms with greater analyst following, firms that issue earnings guidance, and for analysts with greater firm-specific experience.

As previously stated, the interaction of *Post\*Revise* is not statistically significant. However, the association between *ETRAccuracy* and *Post* may not be constant across the sample of firms that revise tax disclosures (*Revise* = 1) and those that do not revise (*Revise* = 0). I therefore re-estimate equation (1) for the subset of firms that revise (Column 2) and the subset of firms that do not revise (Column 3) their disclosures. The estimated coefficient on *Post* for the sample of firms that revise is negative and significant, suggesting that analyst ETR forecast accuracy decreases following SEC-prompted revisions to a firm's tax disclosures. I do not find a significant estimated coefficient on *Post* for the sample of firms that do not revise. When I test the differences between the estimated coefficients, I find that the association between

*ETRAccuracy* and *Post* is significantly different across the two groups (Column 4,  $p$ -value=0.063), suggesting that the slope coefficients on *Post* significantly vary across the two groups. Thus, the decrease in ETR forecast accuracy in the post-review period that is documented for the full sample (Column 1) is attributable to the subset of firms that revise their tax disclosures.

### **5.2.2 Revision characteristics and changes in analyst ETR forecast accuracy**

The results in Table 6 suggest that firms that revise their tax disclosures following SEC review experience a decrease in analyst ETR forecast accuracy. My second set of hypotheses examines if different revision characteristics are associated with differential changes to analyst ETR forecast accuracy. A finding that  $Post * \Delta Length$  is significantly negative suggests that analyst ETR forecast accuracy incrementally decreases as firms increase the length of their tax disclosures following a tax-related comment letter review. If, however, the interaction of *Post* and  $\Delta Length$  is insignificant, but an  $F$ -test of the combined coefficients remains significantly negative, this suggests that firms that revise their tax disclosures experience a similar decrease in analyst ETR forecast accuracy following a tax-related SEC review, regardless of the increase in length of their tax disclosures.

A finding that  $Post * Numerical$  is significantly positive suggests that analyst ETR forecast accuracy incrementally increases for firms that increase numerical content in their tax disclosures. If the  $F$ -test of *Post* and  $Post * Numerical$  is also insignificant, this suggests that incremental gains in analyst ETR forecast accuracy relating to numerical revisions fully mitigate the decrease in ETR forecast accuracy experienced by firms that revise tax disclosure following SEC review. If, however, the interaction of *Post* and *Numerical* is insignificant, and an  $F$ -test of

the combined coefficients remains significantly negative, this suggest that firms that increase numerical presentation following SEC review experience a decrease in analyst ETR forecast accuracy similar to firms that do not increase numerical presentation following SEC review.

Similarly, a finding that  $Post*Tabular$  is significantly positive suggests that analyst ETR forecast accuracy incrementally increases for firms that increase numerical content in their tax disclosures, while an insignificant  $F$ -test on the combined coefficients of  $Post$  and  $Post*Tabular$  suggests that the incremental gains in analyst ETR forecast accuracy relating to tabular revisions fully mitigate the decrease in ETR forecast accuracy experienced by firms that revise tax disclosure following SEC review. If, however, the interaction of  $Post$  and  $Tabular$  is insignificant, and an  $F$ -test of the combined coefficients remains significantly negative, this suggest that firms that increase tabular presentation following SEC review experience a decrease in analyst ETR forecast accuracy similar to firms that do not increase tabular presentation following SEC review.

Table 7 presents multivariate results for my second set of hypotheses examining the changes in analyst ETR forecast accuracy associated with specific revision characteristics. I confine the analyses to the sample of firms that revise tax disclosures following a tax-related comment letter review ( $Revise = 1$ ). In each analysis, I find a negative, significant estimated coefficient on  $Post$ , consistent with a decrease in analyst ETR forecast accuracy following SEC-prompted revisions to tax disclosures. Column 1 presents results from the analysis of the association between a change in the length of disclosure and analyst ETR forecast accuracy. I do not find a significant association between a change in the length of the revised tax disclosure in the post-review period and analyst ETR forecast accuracy (the coefficient on  $Post*\Delta Length$  is insignificant). Taken together with the primary result that analyst ETR forecast accuracy

decreases for firms that revise post-review, this suggests that changes in analyst ETR forecast accuracy in the post-review period are not related to changes in the length of the tax disclosure. An *F*-test indicates that the sum of the coefficients on *Post* and *Post\*ΔLength* are jointly negative. These results suggest that firms that revise their tax disclosures experience a similar decrease in analyst ETR forecast accuracy following a tax-related SEC review, regardless of the increase in length of their tax disclosures.

Column 2 analyzes the association between an increase in numerical presentation and analyst ETR forecast accuracy. Again, I fail to find support for my hypothesis that an increase in numerical disclosures is associated with incremental gains in analyst ETR forecast accuracy (*Post\*Numerical*). The *F*-test on *Post* and *Post\*Numerical* indicates that these coefficients are jointly negative. These results suggest that both firms that do and do not revise their tax disclosures to include new numerical information following a tax-related SEC comment letter review experience a decrease in analyst ETR forecast accuracy.

Column 3 analyzes the association between an increase in tabular information and analyst ETR forecast accuracy. I find a negative, significant estimated coefficient on *Tabular*. This result suggests that firms that ultimately revise tax disclosures to include new tabular information have lower analyst ETR forecast accuracy prior to receiving the comment letter than firms that ultimately engage in other types of revisions. In support of hypothesis 2c, I find a positive, significant relation between an increase in tabular information following comment letter review (*Post\*Tabular*) and analyst ETR forecast accuracy. This result suggests that firms that revise tax disclosures to include new tabular information experience an incremental increase in analyst ETR forecast accuracy following comment letter review relative to firms that do not include new tabular information. More importantly, I do not find a significant result on the *F*-test of *Post* and

*Post\*Tabular*. This result suggests that firms that revise their tax disclosures to increase tabular information following a tax-related SEC comment letter review fully mitigate the decrease in analyst ETR forecast accuracy in the post-review period.

For completeness, in Column 4 I include all three types of disclosure characteristics and continue to find similar results. I continue to find a negative, significant estimated coefficient on *Post*, suggesting that analyst ETR forecast accuracy decreases with SEC-prompted revisions to tax disclosures. I do not find a significant association between changes in the length of disclosure or an increase in numerical presentation following a comment letter review and analyst ETR forecast accuracy. I continue to find a positive, significant relation between an increase in tabular information following comment letter review and analyst ETR forecast accuracy. The *F*-test on *Post* and *Post\*ΔLength (Post\*Numerical)* indicates that these coefficients are jointly negative. These findings suggest that changes in the length of the disclosure and revisions that include new numerical information within the text of the disclosure do not change the overall decrease in ETR forecast accuracy resulting from SEC-prompted revisions. In contrast, I do not find a significant result on the *F*-test of *Post* and *Post\*Tabular*. Notably, this result suggests the inclusion of tabular information in tax disclosures fully attenuates the decrease in ETR forecast accuracy, suggesting that analysts' understanding of tax information increases with increased tabular presentation.



**TABLE 3**  
**Comment Letter Descriptive Statistics**

This table presents descriptive statistics on the comment letter process for firms receiving tax-related comment letters. Panel A presents results for the full sample of 365 firms. Panel B presents results for the subsample of 274 firms specifically asked to revise tax disclosures during the comment letter process. Panel C presents results on the tax issues addressed in the comment letter for both the full sample of 365 firms and the subsample of 274 firms specifically asked to revise.

*Panel A, Descriptive Statistics for the Full Sample of Firms Receiving Tax-Related Comment Letters*

	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>25th Pctl</b>	<b>Median</b>	<b>75th Pctl</b>
<i>Rounds</i>	365	1.2274	0.4864	1.0000	1.0000	1.0000
<i>TaxComment</i>	365	1.5452	0.9146	1.0000	1.0000	2.0000
<i>RevRequest</i>	365	0.7507	0.4332	1.0000	1.0000	1.0000

These results are based on 365 distinct firms.

*Panel B, Descriptive Statistics for the Sub-Sample of Firms Requested to Revise Tax-Related Disclosure*

	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>25th Pctl</b>	<b>Median</b>	<b>75th Pctl</b>
<i>Rounds</i>	274	1.2555	0.5068	1.0000	1.0000	1.0000
<i>TaxComment</i>	274	1.6095	0.9002	1.0000	1.0000	2.0000
<i>Compliance</i>	274	0.6934	0.4619	0.0000	1.0000	1.0000
<i>Negotiation</i>	274	0.2044	0.4040	0.0000	0.0000	0.0000
<i>ΔLength</i>	274	121.09	155.70	29.00	88.50	166.00
<i>Numerical</i>	274	0.5876	0.4932	0.0000	1.0000	1.0000
<i>Tabular</i>	274	0.1715	0.3777	0.0000	0.0000	0.0000

These results are based on 274 distinct firms.

*Panel C, Descriptive Statistics on the Tax Issues Addressed in the Comment Letter*

	<b>Full Sample (N=365)</b>		<b>Requested to Revise (N=274)</b>	
	<b># of Letters</b>	<b>% of Total Letters</b>	<b># of Letters</b>	<b>% of Total Letters</b>
<i>APB23</i>	124	33.97%	117	42.70%
<i>RateRec</i>	116	31.78%	107	39.05%
<i>VA</i>	58	15.89%	55	20.07%
<i>UTP</i>	40	10.96%	34	12.41%
<i>Other</i>	22	6.03%	17	6.20%
<i>BusCombo</i>	6	1.64%	2	0.73%
<i>Intraperiod</i>	5	1.37%	5	1.82%
<i>StockOption</i>	5	1.37%	2	0.73%
<i>TransferPricing</i>	2	0.55%	2	0.73%

**TABLE 3 (Continued)**  
**Comment Letter Descriptive Statistics**

*Rounds* equals the number of rounds of correspondence between the firm and the SEC prior to the SEC finalizing its review. *TaxComment* equals the number of tax comments included in the first SEC comment letter issued to the firm. *RevRequest* is an indicator variable equal to one if the SEC specifically asks the firm to revise its tax disclosure during correspondence, and zero otherwise. *Compliance* is an indicator variable equal to one if the firm complies with the SEC's request to revise a tax disclosure, and zero otherwise. *Negotiation* equals one if the SEC specifically asks the firm to revise its tax disclosure during correspondence and the number of rounds of correspondence between the firm and the SEC is greater than one, and zero otherwise. *ΔLength* equals the word count in the revised tax disclosure in the event year less the word count in the original tax disclosure prior to comment letter review. For firms not revising tax disclosures following an SEC request for revision, *ΔLength* equals zero. *Numerical* equals one if the firm includes new numbers in the text of its revised disclosure following comment letter review, and zero otherwise. *Tabular* equals one if the firm adds tabular information in its revised disclosure following comment letter review, and zero otherwise. *APB23* refers to SEC comments on the availability of or taxation on a foreign subsidiary's earnings. *BusCombo* captures SEC comments on a business combination's tax structure or the recording of taxes resulting from a business combination. *Intraperiod* represents SEC comments on the allocation of taxes across the income statement (e.g., Income from Continuing Operations, Extraordinary Items, etc.). *RateRec* captures SEC comments that relate to components of the firm's effective tax rate calculation. *UTP* represents SEC comments on a firm's uncertain tax positions or tax reserves. *StockOption* refers to SEC comments on the tax benefit associated with stock-based compensation awards. *VA* refers to SEC comments on the firm's valuation allowance or ability to realize future deferred tax assets. *Other* refers to all other tax-related SEC comments that do not directly apply to any of the previously mentioned categories.

**TABLE 4**  
**Firm Characteristic Descriptive Statistics**

This table presents descriptive statistics for firms included in the final sample. Panel A presents results for the full Compustat population of firms. Panel B presents descriptive statistics for the full sample of firms receiving tax-related SEC comment letters during my sample period. Panel C contains descriptive statistics for the full sample of firms partitioned into the two years prior to comment letter review (Pre-Event Window) and the two years following comment letter review (Post-Event Window).

*Panel A, Descriptive Statistics for the Compustat Population of Firms*

	<u>Obs.</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>25th Pctl</u>	<u>Median</u>	<u>75th Pctl</u>
<i>CashETR</i>	48,363	0.2536	0.2184	0.0832	0.2302	0.3504
<i>GAAPETR</i>	48,363	0.3181 ***	0.1598	0.2449	0.3317	0.3797
$\sigma$ <i>ETR</i>	48,363	0.2887	0.7744	0.0210	0.0595	0.1936
<i>Assets</i>	48,363	9,552 ***	33,737	243.2	930.1	3,976.6
<i>Size</i>	48,363	6.8995 ***	2.1594	5.4938	6.8353	8.2882

Compustat results are based on 8,256 distinct firms and 48,363 distinct firm years.

*Panel B, Descriptive Statistics for the Full Sample*

	<u>Obs.</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>25th Pctl</u>	<u>Median</u>	<u>75th Pctl</u>
<i>ETRAccuracy</i>	7,111	-0.0352	0.0680	-0.0305	-0.0099	-0.0035
<i>ETRSurp</i>	1,147	0.1837	0.4733	0.0134	0.0360	0.1126
<i>GAAPETR</i>	1,147	0.3000	0.1638	0.2087	0.2989	0.3611
$\sigma$ <i>ETR</i>	1,147	0.2880	0.6709	0.0267	0.0620	0.1933
<i>CompExp</i>	1,147	0.0103	0.0128	0.0029	0.0058	0.0124
<i>PermDiff</i>	1,147	0.1630	0.2622	0.0298	0.0794	0.1828
<i>TLCF</i>	1,147	0.5711	0.4951	0.0000	1.0000	1.0000
<i>CashETR</i>	1,147	0.2534	0.1987	0.1189	0.2291	0.3336
<i>Foreign</i>	1,147	0.7559	0.4298	1.0000	1.0000	1.0000
<i>RD</i>	1,147	0.0378	0.0615	0.0000	0.0069	0.0503
<i>MTB</i>	1,147	3.2108	3.7447	1.5630	2.3500	3.7008
<i>Assets</i>	1,147	13,538	33,829	995.1	2,968	8,276
<i>Size</i>	1,147	8.0547	1.6719	6.9029	7.9957	9.0211
<i>NumSegs</i>	1,147	1.8736	1.1420	1.0000	2.0000	2.0000
<i>Leverage</i>	1,147	0.1805	0.1581	0.0350	0.1673	0.2776
<i>NAnalysts</i>	1,147	12.686	8.0481	6.0000	11.000	17.000
<i>Guidance</i>	1,147	0.5963	0.4909	0.0000	1.0000	1.0000
<i>BrokerSize</i>	7,111	0.4934	0.3322	0.1905	0.4849	0.7910
<i>FirmExp</i>	7,111	0.8703	0.1736	0.7500	1.0000	1.0000
<i>GenExp</i>	7,111	0.5988	0.3185	0.3750	0.6250	0.8750
<i>NCos</i>	7,111	0.4685	0.3284	0.2000	0.4444	0.7143
<i>NInds</i>	7,111	0.4426	0.4036	0.0000	0.4000	1.0000

These results are based on 365 distinct firms and 1,147 distinct firm years.

**TABLE 4 (Continued)**  
**Firm Characteristic Descriptive Statistics**

*Panel C, Descriptive Statistics for the Full Sample Partitioned into Pre- and Post-Event Windows*

	Pre-Event Window						Post-Event Window					
	Obs.	Mean	Std. Dev.	25th Pctl	Median	75th Pctl	Obs.	Mean	Std. Dev.	25th Pctl	Median	75th Pctl
<i>ETRAccuracy</i>	3,440	-0.0325	0.0618	-0.0300	-0.0103	-0.0039	3,671	-0.0377 ***	0.0733	-0.0312	-0.0096	-0.0031
<i>ETRSurp</i>	552	0.2129	0.5296	0.0146	0.0386	0.1195	595	0.1565 **	0.4129	0.0116	0.0338	0.1045
<i>σETR</i>	552	0.3100	0.7109	0.0264	0.0612	0.2107	595	0.2676	0.6314	0.0270	0.0637	0.1875
<i>CompExp</i>	552	0.0106	0.0130	0.0029	0.0057	0.0135	595	0.0100	0.0127	0.0029	0.0060	0.0110
<i>PermDiff</i>	552	0.1685	0.2823	0.0301	0.0759	0.1794	595	0.1579	0.2422	0.0298	0.0847	0.1871
<i>TLCF</i>	552	0.5199	0.5001	0.0000	1.0000	1.0000	595	0.6185 ***	0.4862	0.0000	1.0000	1.0000
<i>CashETR</i>	552	0.2567	0.2050	0.1171	0.2378	0.3333	595	0.2504	0.1929	0.1228	0.2266	0.3351
<i>Foreign</i>	552	0.7228	0.4480	0.0000	1.0000	1.0000	595	0.7866 **	0.4101	1.0000	1.0000	1.0000
<i>RD</i>	552	0.0380	0.0613	0.0000	0.0079	0.0527	595	0.0376	0.0617	0.0000	0.0062	0.0462
<i>MTB</i>	552	3.1609	3.7965	1.5196	2.2621	3.6646	595	3.2571	3.6986	1.5959	2.4200	3.7495
<i>Size</i>	552	7.9035	1.6937	6.6582	7.8137	8.8843	595	8.1950 ***	1.6403	7.0442	8.1218	9.1729
<i>NumSegs</i>	552	1.9022	1.1842	1.0000	2.0000	2.0000	595	1.8471	1.1018	1.0000	1.0000	2.0000
<i>Leverage</i>	552	0.1739	0.1574	0.0215	0.1498	0.2735	595	0.1866	0.1586	0.0425	0.1795	0.2853
<i>NAnalysts</i>	552	11.784	7.6452	6.0000	10.000	16.000	595	13.523 ***	8.3241	7.0000	12.000	18.000
<i>Guidance</i>	552	0.5888	0.4925	0.0000	1.0000	1.0000	595	0.6034	0.4896	0.0000	1.0000	1.0000
<i>BrokerSize</i>	3,440	0.4986	0.3387	0.1913	0.4797	0.8125	3,671	0.4885	0.3260	0.1905	0.5000	0.7586
<i>FirmExp</i>	3,440	0.8699	0.1755	0.7500	1.0000	1.0000	3,671	0.8706	0.1718	0.7500	1.0000	1.0000
<i>GenExp</i>	3,440	0.5300	0.3471	0.2000	0.5000	0.8333	3,671	0.6632 ***	0.2739	0.5000	0.6667	0.8889
<i>NCos</i>	3,440	0.4707	0.3227	0.2124	0.4286	0.7143	3,671	0.4663	0.3337	0.2000	0.5000	0.7143
<i>NInds</i>	3,440	0.4294	0.3953	0.0000	0.3333	1.0000	3,671	0.4550 ***	0.4109	0.0000	0.5000	1.0000

These results are based on 365 distinct firms, 552 distinct firm-years in the Pre-Event Window, and 595 distinct firm-years in the Post-Event Window.

\*, \*\*, \*\*\* indicate statistical significance between the Pre-Event Window and Post-Event Window periods at the 0.10, 0.05, and 0.01 levels, respectively (two-tailed tests).

**TABLE 5**  
**Correlation Matrix**

This table presents correlations for firms receiving tax-related comment letters during my sample period. I report Pearson correlations above the diagonal and Spearman correlations below the diagonal. These results are based on 7,111 analyst firm-year observations for 365 distinct firms. Values in bold indicate statistical significance at the 0.10 level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) <i>ETRAccuracy</i>		<b>-0.17</b>	<b>-0.13</b>	-0.01	<b>-0.14</b>	0.02	<b>-0.08</b>	0.02	<b>0.03</b>	0.01	<b>0.06</b>	<b>0.07</b>	<b>-0.11</b>	<b>0.13</b>	<b>0.10</b>	<b>-0.04</b>	<b>0.06</b>	0.01	-0.01	<b>-0.03</b>	<b>-0.04</b>	<b>-0.06</b>
(2) <i>ETRSurp</i>	<b>-0.24</b>		<b>0.54</b>	<b>0.04</b>	<b>0.72</b>	<b>0.07</b>	<b>0.22</b>	<b>0.04</b>	0.01	<b>-0.06</b>	<b>-0.08</b>	<b>-0.03</b>	<b>0.02</b>	<b>-0.14</b>	<b>-0.06</b>	0.00	-0.01	-0.01	<b>0.03</b>	<b>0.05</b>	<b>-0.04</b>	<b>0.04</b>
(3) $\sigma ETR$	<b>-0.22</b>	<b>0.58</b>		<b>0.08</b>	<b>0.32</b>	<b>0.04</b>	<b>0.11</b>	0.02	-0.01	<b>-0.03</b>	<b>-0.13</b>	<b>-0.08</b>	0.00	<b>-0.14</b>	<b>-0.05</b>	-0.02	-0.02	-0.02	0.00	0.02	<b>-0.06</b>	<b>-0.03</b>
(4) <i>CompExp</i>	<b>0.09</b>	<b>-0.03</b>	<b>0.04</b>		<b>0.03</b>	<b>0.04</b>	<b>-0.11</b>	<b>0.09</b>	<b>0.62</b>	<b>0.21</b>	<b>-0.35</b>	<b>-0.24</b>	<b>-0.35</b>	<b>0.15</b>	<b>-0.06</b>	<b>-0.05</b>	0.01	0.01	0.00	<b>-0.04</b>	<b>-0.03</b>	<b>0.03</b>
(5) <i>PermDiff</i>	<b>-0.15</b>	<b>0.45</b>	<b>0.37</b>	<b>0.08</b>		<b>0.07</b>	<b>-0.13</b>	<b>0.06</b>	<b>0.11</b>	<b>-0.07</b>	0.01	-0.01	<b>0.03</b>	<b>-0.02</b>	<b>-0.09</b>	0.00	0.00	0.01	<b>0.04</b>	<b>0.03</b>	0.01	<b>0.04</b>
(6) <i>TLCF</i>	<b>-0.02</b>	<b>0.07</b>	<b>0.05</b>	<b>0.09</b>	<b>0.07</b>		0.00	<b>0.32</b>	<b>0.13</b>	<b>-0.08</b>	<b>0.06</b>	-0.01	<b>-0.05</b>	<b>0.10</b>	<b>0.05</b>	-0.01	0.02	-0.01	0.02	0.00	<b>0.11</b>	<b>0.09</b>
(7) <i>CashETR</i>	<b>0.02</b>	<b>-0.06</b>	<b>-0.13</b>	<b>-0.09</b>	<b>-0.38</b>	-0.02		0.02	<b>-0.23</b>	-0.02	<b>-0.11</b>	<b>-0.02</b>	0.00	<b>-0.17</b>	<b>0.07</b>	0.00	0.01	0.00	-0.02	<b>0.02</b>	0.00	<b>-0.04</b>
(8) <i>Foreign</i>	-0.01	<b>0.07</b>	<b>0.08</b>	<b>0.21</b>	<b>0.17</b>	<b>0.32</b>	0.00		<b>0.18</b>	<b>0.05</b>	<b>0.08</b>	<b>0.10</b>	<b>-0.13</b>	<b>0.16</b>	<b>0.07</b>	-0.01	<b>0.04</b>	0.01	0.00	0.00	<b>0.07</b>	<b>0.06</b>
(9) <i>RD</i>	<b>0.05</b>	<b>0.10</b>	<b>0.12</b>	<b>0.55</b>	<b>0.29</b>	<b>0.13</b>	<b>-0.24</b>	<b>0.27</b>		<b>0.11</b>	<b>-0.02</b>	<b>-0.14</b>	<b>-0.27</b>	<b>0.34</b>	<b>-0.04</b>	<b>-0.03</b>	<b>0.04</b>	<b>0.03</b>	<b>0.02</b>	<b>-0.03</b>	0.01	<b>0.06</b>
(10) <i>MTB</i>	<b>0.12</b>	<b>-0.14</b>	<b>-0.15</b>	<b>0.40</b>	<b>-0.08</b>	-0.01	0.01	<b>0.16</b>	<b>0.34</b>		<b>-0.09</b>	<b>-0.04</b>	0.00	<b>0.09</b>	0.02	-0.01	<b>-0.07</b>	0.00	<b>-0.04</b>	<b>-0.02</b>	-0.01	<b>0.06</b>
(11) <i>Size</i>	<b>0.05</b>	<b>-0.06</b>	<b>-0.14</b>	<b>-0.36</b>	<b>0.16</b>	<b>0.07</b>	<b>-0.10</b>	<b>0.10</b>	<b>-0.04</b>	<b>-0.12</b>		<b>0.33</b>	<b>0.19</b>	<b>0.52</b>	0.00	<b>0.04</b>	-0.02	0.00	<b>-0.07</b>	<b>-0.05</b>	<b>0.08</b>	<b>-0.04</b>
(12) <i>NumSegs</i>	0.00	<b>-0.05</b>	<b>-0.09</b>	<b>-0.24</b>	<b>-0.04</b>	0.00	<b>0.06</b>	<b>0.11</b>	<b>-0.09</b>	<b>-0.08</b>	<b>0.28</b>		<b>0.05</b>	<b>0.06</b>	<b>0.14</b>	0.02	0.02	<b>-0.03</b>	<b>-0.02</b>	<b>-0.03</b>	<b>-0.05</b>	0.00
(13) <i>Leverage</i>	<b>-0.08</b>	<b>0.08</b>	0.00	<b>-0.34</b>	<b>0.04</b>	<b>-0.05</b>	-0.01	<b>-0.10</b>	<b>-0.21</b>	<b>-0.08</b>	<b>0.26</b>	<b>0.11</b>		<b>-0.13</b>	0.01	<b>0.03</b>	<b>-0.03</b>	-0.02	0.00	0.02	<b>0.06</b>	<b>-0.07</b>
(14) <i>NAnalysts</i>	<b>0.16</b>	<b>-0.13</b>	<b>-0.17</b>	<b>0.18</b>	<b>0.11</b>	<b>0.10</b>	<b>-0.16</b>	<b>0.15</b>	<b>0.20</b>	<b>0.18</b>	<b>0.53</b>	-0.01	<b>-0.09</b>		<b>-0.05</b>	<b>-0.06</b>	-0.02	<b>0.04</b>	<b>-0.09</b>	<b>-0.12</b>	<b>0.12</b>	<b>0.02</b>
(15) <i>Guidance</i>	<b>0.13</b>	<b>-0.10</b>	<b>-0.14</b>	<b>0.04</b>	<b>-0.12</b>	<b>0.05</b>	<b>0.13</b>	<b>0.07</b>	<b>0.05</b>	<b>0.09</b>	<b>-0.02</b>	<b>0.12</b>	<b>0.03</b>	<b>0.00</b>		0.02	-0.01	<b>-0.03</b>	-0.01	<b>0.06</b>	0.02	<b>-0.03</b>
(16) <i>BrokerSize</i>	<b>-0.05</b>	0.00	0.00	<b>-0.05</b>	0.02	-0.01	0.00	-0.01	0.00	<b>-0.02</b>	<b>0.04</b>	<b>0.02</b>	<b>0.04</b>	<b>-0.04</b>	<b>0.02</b>		<b>0.08</b>	<b>0.07</b>	<b>0.23</b>	<b>0.10</b>	-0.02	<b>0.02</b>
(17) <i>FirmExp</i>	<b>0.07</b>	0.00	0.02	<b>0.02</b>	-0.01	0.02	0.01	<b>0.03</b>	<b>0.04</b>	<b>-0.03</b>	<b>-0.02</b>	0.01	<b>-0.03</b>	<b>-0.02</b>	-0.01	<b>0.07</b>		<b>0.20</b>	<b>0.13</b>	<b>0.05</b>	0.00	-0.01
(18) <i>GenExp</i>	<b>0.02</b>	<b>-0.02</b>	-0.01	<b>0.02</b>	0.01	<b>-0.01</b>	0.00	0.00	0.02	<b>0.02</b>	-0.02	<b>-0.03</b>	-0.02	0.01	<b>-0.03</b>	<b>0.08</b>	<b>0.19</b>		<b>0.17</b>	<b>0.10</b>	<b>0.21</b>	<b>-0.02</b>
(19) <i>NCos</i>	-0.02	<b>0.03</b>	<b>0.03</b>	0.00	<b>0.05</b>	<b>0.02</b>	<b>-0.03</b>	0.01	<b>0.05</b>	<b>-0.03</b>	<b>-0.05</b>	-0.02	-0.01	<b>-0.07</b>	-0.01	<b>0.23</b>	<b>0.13</b>	<b>0.16</b>		<b>0.53</b>	-0.01	<b>0.04</b>
(20) <i>NInds</i>	<b>-0.02</b>	<b>0.04</b>	<b>0.04</b>	<b>-0.03</b>	0.01	<b>0.00</b>	0.02	0.01	-0.02	<b>-0.04</b>	<b>-0.04</b>	-0.01	0.02	<b>-0.09</b>	<b>0.06</b>	<b>0.09</b>	<b>0.04</b>	<b>0.10</b>	<b>0.54</b>		<b>0.03</b>	<b>0.05</b>
(21) <i>Post</i>	0.01	<b>-0.03</b>	<b>-0.02</b>	-0.01	<b>0.05</b>	<b>0.11</b>	0.01	<b>0.07</b>	0.01	<b>0.04</b>	<b>0.08</b>	<b>-0.03</b>	<b>0.06</b>	<b>0.12</b>	0.02	-0.02	0.00	<b>0.19</b>	-0.01	<b>0.03</b>		<b>0.07</b>
(22) <i>Revise</i>	<b>-0.03</b>	<b>0.04</b>	-0.01	<b>0.05</b>	<b>0.07</b>	<b>0.09</b>	<b>-0.04</b>	<b>0.06</b>	<b>0.10</b>	<b>-0.03</b>	<b>-0.04</b>	0.00	<b>-0.08</b>	0.00	<b>-0.03</b>	<b>0.02</b>	<b>-0.02</b>	<b>-0.02</b>	<b>0.05</b>	<b>0.05</b>	-0.01	

**TABLE 6**  
**OLS Regression of Individual Analyst Implied ETR Forecast Accuracy**

This table presents the results from an OLS regression of analysts' implied ETR forecast accuracy (*ETRAccuracy*) on *Post*, an indicator variable equal to one for fiscal years occurring after a tax-related comment letter review, *Revise*, an indicator variable equal to one for a firm that revises its tax disclosure following a comment letter review, and controls. These results are based on 365 distinct firms for 1,147 distinct firm years and 7,111 distinct analyst-firm-year observations. All regressions control for industry and year fixed effects. All continuous variables are winsorized. T-statistics are calculated using White (1980) standard errors that are clustered by firm in order to control for both heteroscedasticity and serial correlation. \*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. See Appendix A for variable definitions.

Variable	Expected Sign	[1] All Firms		[2] Firms that Revise (Revise=1)		[3] Firms that do not Revise (Revise=0)		[4] Wald Test of [2] versus [3]
		Coefficient	t- statistic	Coefficient	t- statistic	Coefficient	t- statistic	p-value
<i>Post</i>	?	-0.0172 ***	-2.74	-0.0243 ***	-3.00	-0.0044	-0.61	0.063 *
<i>Revise</i>	?	-0.0072 *	-1.76					
<i>Post*Revise</i>	?	-0.0049	-0.86					
<b><u>Tax Complexity</u></b>								
<i>ETRSurp</i>	-	-0.0035	-0.36	-0.0134	-1.17	0.0132	1.13	0.101
$\sigma ETR$	-	-0.0056 **	-1.88	-0.0006	-0.13	-0.0108 ***	-2.60	0.107
<i>CompExp</i>	-	-0.3171 *	-1.61	-0.4101 *	-1.45	-0.0808	-0.46	0.318
<i>PermDiff</i>	-	-0.0277 *	-1.45	-0.0157	-0.69	-0.0476 ***	-2.59	0.273
<i>TLCF</i>	+	0.0022	0.55	0.0046	0.79	-0.0076	-1.93	0.080 *
<i>CashETR</i>	?	-0.0570 ***	-3.86	-0.0539 ***	-3.09	-0.0419 *	-1.94	0.663
<i>Post*CashETR</i>	?	0.0397 *	1.76	0.0387	1.28	0.0145	0.62	0.523
<i>Foreign</i>	-	-0.0087 *	-1.47	-0.0112 *	-1.29	0.0015	0.29	0.205
<i>RD</i>	-	-0.0530	-1.20	-0.0575	-0.94	-0.0269	-0.72	0.668
<b><u>General Complexity</u></b>								
<i>MTB</i>	?	0.0002	0.45	0.0003	0.59	0.0009	1.12	0.497
<i>Size</i>	?	0.0006	0.43	0.0014	0.71	-0.0011	-0.52	0.385
<i>NumSegs</i>	?	-0.0006	-0.44	-0.0002	-0.09	-0.0012	-0.78	0.667
<i>Leverage</i>	?	-0.0713 ***	-3.76	-0.0868 ***	-3.30	-0.0237	-1.25	0.050 **
<b><u>Information Environment</u></b>								
<i>NAnalysts</i>	+	0.0008 ***	3.06	0.0008 ***	2.40	0.0007 **	1.77	0.812
<i>Guidance</i>	+	0.0106 ***	2.66	0.0123 **	2.24	0.0129 ***	2.55	0.941
<b><u>Analyst Characteristics</u></b>								
<i>BrokerSize</i>	+	-0.0095	-3.19	-0.0093	-2.44	-0.0076	-1.82	0.759
<i>FirmExp</i>	+	0.0202 ***	3.26	0.0192 **	2.26	0.0214 ***	3.37	0.840
<i>GenExp</i>	+	0.0026	0.91	0.0012	0.33	0.0042	1.01	0.586
<i>NCos</i>	-	0.0014	0.39	0.0001	0.02	0.0002	0.02	0.995
<i>NInds</i>	-	-0.0032	-0.98	-0.0026	-0.66	0.0004	0.08	0.654
Year, Industry FE		YES		YES		YES		
N		7,111		4,857		2,254		
R <sup>2</sup>		0.119		0.129		0.154		
<b>F-Test Significance: <i>Post</i> + <i>Post*Revise</i></b>								
Combined Coefficient		-0.0221 ***						
p-value		0.002						

**TABLE 7**  
**OLS Regression of Individual Analyst Implied ETR Forecast Accuracy: Revision Characteristics**

This table presents the results from an OLS regression of analysts' implied ETR forecast accuracy (*ETRAccuracy*) on *Post*, an indicator variable equal to one for fiscal years occurring after a tax-related comment letter review,  $\Delta$ *Length*, equal to the word count in the revised tax disclosure in the event year less the word count in the original tax disclosure prior to comment letter review, *Numerical*, an indicator variable equal to one if the firm includes new numbers in its revised disclosure following comment letter review, *Tabular*, an indicator variable equal to one if the firm adds tabular information in its revised disclosure following comment letter review, and controls. These results are based on the sample of firms that ultimately revise their future tax disclosure (*Revise* = 1). The sample includes 246 distinct firms for 781 distinct firm years and 4,857 distinct analyst-firm-year observations. All regressions control for industry and year fixed effects. All continuous variables are winsorized. T-statistics are calculated using White (1980) standard errors that are clustered by firm in order to control for both heteroscedasticity and serial correlation. \*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

<i>Variable</i>	<i>Expected Sign</i>	[1]		[2]		[3]		[4]	
		<i>Coefficient</i>	<i>t-statistic</i>	<i>Coefficient</i>	<i>t-statistic</i>	<i>Coefficient</i>	<i>t-statistic</i>	<i>Coefficient</i>	<i>t-statistic</i>
<i>Post</i>	?	-0.0201 **	-1.97	-0.0182 **	-1.98	-0.0267 ***	-3.21	-0.0199 *	-1.87
$\Delta$ <i>Length</i>	?	0.0000	-0.71					0.0067	1.13
<i>Post</i> * $\Delta$ <i>Length</i>	-	0.0000	-0.68					-0.0011	-0.13
<i>Numerical</i>	?			0.0101	1.61			0.0000	-0.47
<i>Post</i> * <i>Numerical</i>	+			-0.0071	-0.88			0.0000	-0.85
<i>Tabular</i>	?					-0.0255 ***	-3.02	-0.0225 ***	-2.76
<i>Post</i> * <i>Tabular</i>	+					0.0190 **	2.06	0.0210 **	2.14
Controls		YES		YES		YES		YES	
Year, Industry FE		YES		YES		YES		YES	
N		4,857		4,857		4,857		4,857	
R <sup>2</sup>		0.132		0.131		0.135		0.139	
<b>F-Test Significance: <i>Post</i> + <i>Post</i>*<i>Characteristic</i></b>									
		<i>Combined Coeff.</i>	<i>p-value</i>	<i>Combined Coeff.</i>	<i>p-value</i>	<i>Combined Coeff.</i>	<i>p-value</i>	<i>Combined Coeff.</i>	<i>p-value</i>
$\Delta$ <i>Length</i>		-0.0201 **	0.050					-0.0199 *	0.062
<i>Numerical</i>				-0.0253 ***	0.006			-0.0209 *	0.060
<i>Tabular</i>						-0.0077	0.437	0.0011	0.931

## CHAPTER 6

### ROBUSTNESS TESTS

#### 6.1 Propensity Score Match Sample Analyses

To address endogeneity concerns relating to the non-random selection of firms undergoing a tax-related SEC review, I use propensity scores to create two matched samples of firms. The first sample consists of all firms receiving a tax-related comment letter (“letter firms”). The second sample consists of firms that ultimately revise tax disclosures following a tax-related SEC review (“revise firms”). I match firms in each of these samples with control firms that do not receive a comment letter during the same [-2,2] event window. To determine a propensity score for each firm, I estimate the following logistic regression:

$$TaxReview_j = \beta_0 + \beta_1 Size_j + \beta_2 StdRet_j + \beta_3 MWeak_j + \beta_4 Restate_j + \beta_5 GAAPETR_j + \varepsilon \quad (3)$$

*TaxReview* is an indicator variable equal to one for letter firms (revise firms), and zero for control firms. I include the SOX 408 criteria identified by Cassell et al. (2013) as general determinants of receiving a comment letter. These factors include firm size (*Size*), return volatility (*StdRet*), reported material weaknesses (*MWeak*), and restatements (*Restate*). Finally, I also include the firm’s GAAP ETR (*GAAPETR*) since Kubick et al. (2016) find that *GAAPETR* is a determinant of receiving a tax-related comment letter. I match one-to-one and without replacement.<sup>23</sup> I use the nearest neighbor and limit the match to firms with propensity scores

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<sup>23</sup> My results are robust to matching with replacement and allowing multiple matches on the sample of firms receiving tax-related comment letters.



within 10 percent of each other. I match within the same industry and on the event year of firms receiving a tax-related SEC comment letter.

Table 8, Panel A presents descriptive statistics for the sample of letter firms and control firms generated using propensity score matching. Univariate statistics indicate that firms that receive a tax comment letter are larger (*Size*) and have less volatile returns (*StdRet*) than control firms. Table 8, Panel B presents descriptive statistics for the sample of revise firms and control firms generated using propensity score matching. Again, I find that the firms revising their tax disclosures following a tax-related SEC review are larger (*Size*) and have less volatile returns (*StdRet*) than control firms. The few differences in the means between samples indicate that the matching procedures discussed above generate reasonable matches.

To examine if the event of a tax-related SEC review drives the decrease in analyst ETR forecast accuracy documented in Table 6, I estimate the following equation separately for the sample of firms receiving tax-related comment letters and matched control firms:

$$\begin{aligned}
 ETRAccuracy_{i,j,t} = & \beta_0 + \beta_1 Post_{j,t} + \beta_{2-10} TaxComplexity_{j,t} + \beta_{11-14} GeneralComplexity_{j,t} + \\
 & \beta_{15-16} InformationEnvironment_{j,t} + \beta_{17-21} AnalystCharacteristics_{i,j,t} + \\
 & \beta_{22-25} TaxLetterDeterminants_{i,j,t} + Year\ fixed\ effects + Industry\ fixed\ effects + \varepsilon \quad (4)
 \end{aligned}$$

In addition to the control variables originally included in equation (1), I also control for determinants of receiving a tax-related SEC comment letter. I do so to further capture any differences between the firms undergoing a tax-related SEC review and matched control firms. These controls include the firm's level of GAAP ETR (*GAAPETR*), volatility of returns (*StdRet*), documented material weaknesses (*MWeak*), and restatements (*Restate*). All other variables are as previously defined.

Table 8, Panel C presents multivariate results for the sample of letter firms (Column 1) and matched control firms (Column 2). The estimated coefficient on *Post* for the sample of letter firms is negative and significant, suggesting that analyst ETR forecast accuracy decreases following a tax-related SEC review. I do not find a significant estimated coefficient on *Post* for the sample of control firms, suggesting no change in analyst ETR forecast accuracy for firms that do not undergo a tax-related SEC review. When I test the differences between the estimated coefficients, I find that the association between *ETRAccuracy* and *Post* is significantly different across the two groups (Column 3,  $p$ -value=0.014), suggesting that the slope coefficients on *Post* significantly vary across the two groups. Overall, these results suggest that the decrease in analyst ETR forecast accuracy in the post-review years is only present for firms undergoing a tax-related SEC review.

Table 8, Panel D presents multivariate results for the sample of revise firms (Column 1) and matched control firms (Column 2). These results are similar to those presented in Panel C. The estimated coefficient on *Post* for the sample of revise firms is negative and significant, suggesting that analyst ETR forecast accuracy decreases in the period following SEC-prompted revisions to tax disclosures. I do not find a significant estimated coefficient on *Post* for the sample of control firms, suggesting no change in analyst ETR forecast accuracy for firms that do not undergo a tax-related SEC review. When I test the differences between the estimated coefficients, I find that the association between *ETRAccuracy* and *Post* is significantly different across the two groups (Column 3,  $p$ -value=0.086), suggesting that the slope coefficients on *Post* significantly vary across the two groups. These results suggest that the decrease in analyst ETR forecast accuracy in the post-review years is only present for firms that revise their tax

disclosures following a tax-related SEC review, and not for firms that do not undergo a tax-related SEC review.

## 6.2 SEC-prompted Revisions and Changes in Consensus Analyst ETR Forecast Accuracy and ETR Forecast Dispersion

To further examine if the decrease in ETR forecast accuracy is driven by SEC-prompted revisions to tax disclosures, I examine two additional forecast properties: consensus ETR forecast accuracy and ETR forecast dispersion. Prior literature uses these measures as proxies for changes in the precision of common information available to analysts (e.g., Bowen, Davis, and Matsumoto 2002). Form 10-K disclosures are examples of common information available to analysts. If SEC-prompted revisions to tax disclosures decrease the precision of common information available to analysts, I expect a decrease in consensus ETR forecast accuracy and an increase in ETR forecast dispersion for the sample of firms revising tax disclosures in the post-review period, and not for the sample of firms that do not revise tax disclosures in the post-review period.

To examine if consensus ETR forecast accuracy and ETR forecast dispersion change following a tax-related SEC review, I estimate the following OLS regression using firm-year observations:

$$\begin{aligned} ForecastProperty_{j,t} = & \beta_0 + \beta_1 Post_{j,t} + \beta_{2-10} TaxComplexity_{j,t} + \beta_{11-14} GeneralComplexity_{j,t} + \\ & \beta_{15-16} InformationEnvironment_{j,t} + Year\ fixed\ effects + Industry\ fixed\ effects + \varepsilon \end{aligned} \quad (5)$$

I estimate equation 5 separately for the subset of firms that revise tax disclosures ( $Revise = 1$ ) and the subset of firms that do not revise tax disclosures ( $Revise = 0$ ) following a tax-related SEC review. The variable *ForecastProperty* represents either consensus ETR forecast accuracy

(*AvgAccuracy*) or ETR forecast dispersion (*ETRDispersion*). *AvgAccuracy* is the absolute value of the difference between the consensus implied ETR forecast and the actual ETR for analysts following a particular firm in a particular year, multiplied by -1. *ETRDispersion* equals the standard deviation of the implied ETR forecasts for all individual analysts following a particular firm in a particular year. All other variables are as previously defined. If the change in consensus ETR forecast accuracy or ETR forecast dispersion in the post-review years is only present for firms that revise their tax disclosures, I expect a significant estimated coefficient on *Post* for the sample of firms that revise their tax disclosures (*Revise* = 1) and not on firms that do not revise their tax disclosures (*Revise* = 0).

Table 9, Panel A presents multivariate results from estimation of equation (5) examining analysts' implied consensus ETR forecast accuracy (*AvgAccuracy*). Overall, the results are consistent with those presented in Table 6. The estimated coefficient on *Post* for the sample of firms that revise is negative and significant (Column 1), suggesting that consensus ETR forecast accuracy decreases following SEC-prompted revisions to a firm's tax disclosures. I do not find a significant estimated coefficient on *Post* for the sample of firms that do not revise (Column 2). When I test the differences between the estimated coefficients, I find that the association between *AvgAccuracy* and *Post* is significantly different across the two groups (Column 3,  $p$ -value=0.081), suggesting that the slope coefficients on *Post* significantly vary across the two groups. Thus, the decrease in consensus ETR forecast accuracy in the post-review period is attributable to the subset of firms that revise their tax disclosures.

Table 9, Panel B presents multivariate results from estimation of equation (5) examining analysts' implied ETR forecast dispersion (*ETRDispersion*). I do not find a significant estimated coefficient on *Post* for both the subset of firms that revise (Column 1) and the subset of firms

that do not revise (Column 2). When I test the differences between the estimated coefficients, I do not find that the association between *ETRDispersion* and *Post* is significantly different across the two groups (Column 3,  $p$ -value=0.987), suggesting that the slope coefficients on *Post* do not significantly vary across the two groups. Thus, I do not document a difference in ETR forecast dispersion for firms that do and do not revise their tax disclosures following a tax-related SEC review.

While I fail to find results with respect to ETR forecast dispersion (Table 9, Panel B), I find robust evidence that decreases in forecast accuracy relate to SEC-prompted revisions to tax disclosures. Results in Table 6 suggest that individual analyst ETR forecast accuracy decreases post-review for firms that revise their tax disclosures. Results in Table 9, Panel A suggest that the same is true for the consensus ETR forecast. Overall, these results further support that the change in the precision of common information available to analysts (i.e., SEC-prompted revisions to Form 10-K tax disclosures) drives the changes in analyst ETR forecast properties in the post-review environment.

**TABLE 8**  
**Propensity Score Match Sample Analyses**

This table presents the propensity score match sample analyses. Panels A and B provide descriptive statistics on the variables used to match both samples of firms. Panels C and D provide results from an OLS regression of analysts' implied ETR forecast accuracy (*ETRAccuracy*) on *Post*, an indicator variable equal to one for fiscal years occurring after a tax-related comment letter review, and controls.

*Panel A, Descriptive Statistics for Firms Receiving a Tax-Related Comment Letter ("Letter Firms") and Control Firms*

	Letter Firms						Control Firms					
	Obs.	Mean	Std. Dev.	25th Pctl	Median	75th Pctl	Obs.	Mean	Std. Dev.	25th Pctl	Median	75th Pctl
<i>Size</i>	1,028	7.9762	1.6801	6.7970	7.9104	8.9839	960	7.4907 ***	1.5875	6.3771	7.3938	8.5065
<i>StdRet</i>	1,028	0.0173	0.0081	0.0112	0.0156	0.0214	960	0.0181 **	0.0082	0.0120	0.0162	0.0225
<i>MWeak</i>	1,028	0.0117	0.1075	0.0000	0.0000	0.0000	960	0.0177	0.1320	0.0000	0.0000	0.0000
<i>Restate</i>	1,028	0.0700	0.2553	0.0000	0.0000	0.0000	960	0.0615	0.2403	0.0000	0.0000	0.0000
<i>GAAPETR</i>	1,028	0.3100	0.1623	0.2263	0.3091	0.3648	960	0.3119	0.1295	0.2579	0.3237	0.3747

The sample of letter firms consists of 327 firms, 1,028 firm-years, and 6,129 analyst firm-year observations. The sample of control firms consists of 327 firms, 960 firm-years, and 5,425 analyst firm-year observations.

*Panel B, Descriptive Statistics for Firms Revising Future Tax Disclosures Following SEC Review ("Revise Firms") and Control Firms*

	Revise Firms						Control Firms					
	Obs.	Mean	Std. Dev.	25th Pctl	Median	75th Pctl	Obs.	Mean	Std. Dev.	25th Pctl	Median	75th Pctl
<i>Size</i>	732	8.0572	1.6758	6.9319	7.9747	9.0521	709	7.5064 ***	1.5687	6.3963	7.4448	8.4342
<i>StdRet</i>	732	0.0171	0.0078	0.0112	0.0152	0.0210	709	0.0177 *	0.0079	0.0118	0.0163	0.0217
<i>MWeak</i>	732	0.0082	0.0902	0.0000	0.0000	0.0000	709	0.0113	0.1057	0.0000	0.0000	0.0000
<i>Restate</i>	732	0.0765	0.2660	0.0000	0.0000	0.0000	709	0.0564	0.2309	0.0000	0.0000	0.0000
<i>GAAPETR</i>	732	0.3050	0.1709	0.2130	0.2972	0.3583	709	0.3048	0.1255	0.2551	0.3182	0.3659

The sample of revise firms consists of 230 firms, 732 firm-years, and 4,487 analyst firm-year observations. The sample of control firms consists of 230 firms, 709 firm-years, and 4,176 analyst firm-year observations.

All continuous variables are winsorized. T-statistics are calculated using White (1980) standard errors that are clustered by firm in order to control for both heteroscedasticity and serial correlation. \*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. See Appendix A for variable definitions.

**TABLE 8 (Continued)**  
**Propensity Score Match Sample Analyses**

*Panel C, OLS Regression of Implied ETR Forecast Accuracy: Letter Firms Matched Sample*

<i>Variable</i>	<i>Dependent variable: ETRAccuracy</i>				
	[1]		[2]		[3]
	<i>Letter Firms</i>		<i>Control Firms</i>		<i>Wald Test</i>
	<i>Coefficient</i>	<i>t-statistic</i>	<i>Coefficient</i>	<i>t-statistic</i>	<i>p-value</i>
<i>Post</i>	-0.0183 ***	-2.95	0.0055	0.80	0.014 **
<b><u>Comment Letter Determinants</u></b>					
<i>GAAPETR</i>	0.0342	1.58	0.0197	0.87	0.630
<i>StdRet</i>	-0.7853 **	-2.27	-1.0474 ***	-4.03	0.531
<i>MWeak</i>	-0.0091	-0.73	-0.0331	-1.56	0.340
<i>Restate</i>	-0.0079	-1.17	-0.0021	-0.38	0.480
Controls, Year FE, Ind. FE	YES		YES		
N	6,129		5,425		
R <sup>2</sup>	0.120		0.094		

The sample of letter firms consists of 327 firms, 1,028 firm-years, and 6,129 analyst firm-year observations. The sample of control firms consists of 327 firms, 960 firm-years, and 5,425 analyst firm-year observations.

*Panel D, OLS Regression of Implied ETR Forecast Accuracy: Revise Firms Matched Sample*

<i>Variable</i>	<i>Dependent variable: ETRAccuracy</i>				
	[1]		[2]		[3]
	<i>Revise Firms</i>		<i>Control Firms</i>		<i>Wald Test</i>
	<i>Coefficient</i>	<i>t-statistic</i>	<i>Coefficient</i>	<i>t-statistic</i>	<i>p-value</i>
<i>Post</i>	-0.0191 **	-2.44	0.0006	0.08	0.086 *
<b><u>Comment Letter Determinants</u></b>					
<i>GAAPETR</i>	0.0486	1.63	0.0355	1.45	0.733
<i>StdRet</i>	-0.5183	-1.14	-1.1185 ***	-3.83	0.260
<i>MWeak</i>	0.0016	0.11	-0.0053	-0.52	0.696
<i>Restate</i>	-0.0128 *	-1.66	0.0060	1.08	0.035 **
Controls, Year FE, Ind. FE	YES		YES		
N	4,487		4,176		
R <sup>2</sup>	0.134		0.117		

The sample of revise firms consists of 230 firms, 732 firm-years, and 4,487 analyst firm-year observations. The sample of control firms consists of 230 firms, 709 firm-years, and 4,176 analyst firm-year observations.

All continuous variables are winsorized. T-statistics are calculated using White (1980) standard errors that are clustered by firm in order to control for both heteroscedasticity and serial correlation. \*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. See Appendix A for variable definitions.

**TABLE 9**  
**Examination of Consensus Accuracy and Dispersion for Firms Receiving a Tax-Related SEC Comment Letter**

This table presents the results from an OLS regression of analysts' implied consensus ETR forecast accuracy (*AvgAccuracy*) and ETR forecast dispersion (*ETRDispersion*) on *Post*, an indicator variable equal to one for fiscal years occurring after a tax-related comment letter review, and controls. These results are based on 315 distinct firms for 1,002 distinct firm years. All regressions control for industry and year fixed effects. All continuous variables are winsorized. T-statistics are calculated using White (1980) standard errors that are clustered by firm in order to control for both heteroscedasticity and serial correlation. \*, \*\*, \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. See Appendix A for variable definitions.

**Panel A, OLS Regression of Implied Consensus ETR Forecast Accuracy**

Variable	Dependent variable: <i>AvgAccuracy</i>				
	[1]		[2]		[3]
	<i>Firms that Revise</i> ( <i>Revise = 1</i> )		<i>Firms that do not Revise</i> ( <i>Revise = 0</i> )		<i>Wald Test of</i> <i>[1] versus [2]</i>
	Coeff.	t- stat.	Coeff.	t- stat.	p-value
<i>Post</i>	-0.0201 **	-2.33	0.0029	0.27	0.081 *
Controls, Year FE, Ind. FE	YES		YES		
N	678		324		
R <sup>2</sup>	0.225		0.279		

**Panel B, OLS Regression of Implied ETR Forecast Dispersion**

Variable	Dependent variable: <i>ETRDispersion</i>				
	[1]		[2]		[3]
	<i>Firms that Revise</i> ( <i>Revise = 1</i> )		<i>Firms that do not Revise</i> ( <i>Revise = 0</i> )		<i>Wald Test of</i> <i>[1] versus [2]</i>
	Coeff.	t- stat.	Coeff.	t- stat.	p-value
<i>Post</i>	0.0122	1.37	0.0124	1.25	0.987
Controls, Year FE, Ind. FE	YES		YES		
N	678		324		
R <sup>2</sup>	0.197		0.240		



## **CHAPTER 7**

### **CONCLUSION**

Prior research documents consequences of the comment letter review process. Studies find that subsequent to a general comment letter review, qualitative disclosure in the Form 10-K increases (Bozanic et al. 2015), and the information environment improves for firms that increase qualitative disclosure (Bozanic et al. 2015) and firms that amend their disclosures (Johnston and Petacchi 2017). Kubick et al. (2016) find that firms engage in less tax avoidance following a tax-related comment letter review and include more mention of taxes in subsequent Form 10-K disclosures. However, prior studies do not directly link specific SEC comments to specific changes in the information environment. I focus on tax-related SEC comment letters and directly link these tax comments to changes in future tax disclosures and analysts' ETR forecast accuracy.

I find that analysts' ETR forecast accuracy decreases following SEC-prompted revisions to firms' tax disclosures, suggesting a decrease in the informativeness of tax disclosures for firms that revise following SEC review. The decrease in analyst ETR forecast accuracy is mitigated when new tabular information is included in the revised tax disclosures. This supports the findings of Hutchens (2015), who finds that greater quantitative information disclosed in the income tax footnote increases analyst ETR forecast accuracy. To my knowledge, my paper is the first to examine the tax comments contained in SEC comment letters and the consequences of SEC-prompted revisions to tax disclosures on analyst ETR forecast accuracy. My results suggest that the comment letter review process results in a potentially unintended consequence –

decreased analyst ETR forecast accuracy resulting from SEC-prompted revisions to tax disclosures.

My analyses specifically relate to analysts' understanding of tax information and may not be generalizable to other line items that analysts regularly forecast. Future research can further examine the SEC-prompted revisions to tax disclosures. For example, do revisions addressing the tax footnote versus other portions of the Form 10-K differentially influence analysts' understanding of tax information? Do tax authorities also view tabular disclosures as more understandable, and does audit risk subsequently increase for firms making these revisions? Although prior research provides evidence of improvements in the information environment from the comment letter review process, my study is the first to my knowledge to provide evidence of a decline. As noted by Johnston and Petacchi (2017), whether comment letter costs outweigh the benefits is still an open question.

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## APPENDIX A Variable Definitions

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### Dependent Variable

- ETRAccuracy* = The absolute value of the difference between the implied ETR forecast and the actual ETR for analyst  $i$  in year  $t$ , multiplied by -1. The implied ETR forecast is calculated as the I/B/E/S pretax income forecast less the net income forecast scaled by the pretax income forecast. Pretax income and net income forecasts are limited to forecasts made after the year  $t$  third quarter earnings announcement but prior to the year  $t$  fourth quarter earnings announcement.
- AvgAccuracy* = The absolute value of the difference between the consensus implied ETR forecast and the actual ETR for analysts following firm  $j$  in year  $t$ , multiplied by -1. The implied ETR forecast is calculated as the I/B/E/S pretax income forecast less the net income forecast scaled by the pretax income forecast. Pretax income and net income forecasts are limited to forecasts made after the year  $t$  third quarter earnings announcement but prior to the year  $t$  fourth quarter earnings announcement.
- ETRDispersion* = The standard deviation of the implied ETR forecasts for all individual analysts following firm  $j$  in year  $t$ .

### Independent Variables

- ΔLength* = The word count in the revised tax disclosure in the event year less the word count in the original tax disclosure prior to comment letter review.
- Numerical* = An indicator variable equal to one if the firm includes new numbers in its revised disclosure following comment letter review, and zero otherwise.
- Post* = An indicator variable equal to one for fiscal years occurring after comment letter review, and zero otherwise.
- Revise* = An indicator variable equal to one if the firm revises tax disclosures following comment letter review, and zero otherwise.
- Tabular* = An indicator variable equal to one if the firm adds tabular information in its revised disclosure following comment letter review, and zero otherwise.

### Tax Complexity Variables

- CashETR* = Cash taxes paid (TXPD) scaled by pretax income (PI).
- CompExp* = The firm's prior year stock compensation expense (STKCO) plus implied option expense (XINTOPT/0.65), scaled by total assets (AT).
- ETRSurp* = The absolute value of *GAAPETR* from the current year less the prior year *GAAPETR*. *GAAPETR* equals tax expense (TXT) scaled by pretax income (PI).
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**APPENDIX A (Continued)**  
**Variable Definitions**

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<i>Foreign</i>	= An indicator variable equal to one for firms with non-zero pretax foreign income (PIFO) in the prior year, and zero otherwise.
$\sigma$ <i>ETR</i>	= The standard deviation of <i>GAAPETR</i> over the five year period from $t-4$ to $t$ . <i>GAAPETR</i> equals tax expense (TXT) scaled by pretax income (PI).
<i>PermDiff</i>	= The absolute value of the difference between a firm's prior year <i>GAAPETR</i> and 35%. <i>GAAPETR</i> equals tax expense (TXT) scaled by pretax income (PI).
<i>RD</i>	= A firm's prior year R&D expenditures (XRD) scaled by prior year sales (SALE). If R&D expenditures exceed sales, I set the variable equal to one.
<i>TLCF</i>	= An indicator variable equal to one for firms with non-zero tax loss carryforwards (TLCF) in the prior year, and zero otherwise.

**General Complexity Variables**

<i>Leverage</i>	= Prior year long-term debt (DLTT) scaled by prior year total assets (AT).
<i>MTB</i>	= A firm's prior year market value (PRCC_F*CSHO) scaled by prior year book value (CEQ).
<i>NumSegs</i>	= The number of 4-digit SIC segments for a firm in the current year as reported in Compustat.
<i>Size</i>	= The natural log of prior year total assets (AT).

**General Information Environment Variables**

<i>Guidance</i>	= An indicator variable equal to one if the firm is listed as issuing an earnings forecast in I/B/E/S Guidance for year $t$ .
<i>NAnalysts</i>	= The number of analysts following a firm in year $t$ as reported in I/B/E/S Summary History dataset.

**Analyst Characteristics Variables**

<i>BrokerSize</i>	= The number of analysts employed by the brokerage firm employing analyst $i$ following firm $j$ in year $t$ minus the minimum number of analysts employed by brokerage firms for analysts following firm $j$ in year $t$ , with this difference scaled by the range of brokerage size for analysts following firm $j$ in year $t$ (Clement and Tse 2005).
<i>FirmExp</i>	= The number of years of firm-specific experience for analyst $i$ following firm $j$ in year $t$ minus the minimum number of years of firm-specific experience for analysts following firm $j$ in year $t$ , with this difference scaled by the range of years of firm-specific experience for analysts following firm $j$ in year $t$ (Clement and Tse 2005).
<i>GenExp</i>	= The number of years of experience for analyst $i$ following firm $j$ in year $t$ minus the minimum number of years of experience for analysts following firm $j$ in year $t$ , with this difference scaled by the range of years of experience for analysts following firm $j$ in year $t$ (Clement and Tse 2005).

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**APPENDIX A (Continued)**  
**Variable Definitions**

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<i>NCos</i>	= The number of companies analyst <i>i</i> follows in year <i>t</i> , calculated as the number of companies followed by analyst <i>i</i> following firm <i>j</i> in year <i>t</i> minus the minimum number of companies followed by analysts who follow firm <i>j</i> in year <i>t</i> , with this difference scaled by the range in the number of companies followed by analysts following firm <i>j</i> in year <i>t</i> (Clement and Tse 2005).
<i>NInds</i>	= The number of industries analyst <i>i</i> follows in year <i>t</i> , calculated as the number of two-digit SICs followed by analyst <i>i</i> following firm <i>j</i> in year <i>t</i> minus the minimum number of two-digit SICs followed by analysts who follow firm <i>j</i> in year <i>t</i> , with this difference scaled by the range in the number of two-digit SICs followed by analysts following firm <i>j</i> in year <i>t</i> (Clement and Tse 2005).

**Comment Letter Determinant Variables**

<i>MWeak</i>	= An indicator variable equal to one if the internal control audit opinion as reported in AuditAnalytics is qualified for a material weakness in year <i>t</i> , and 0 otherwise.
<i>Restate</i>	= An indicator variable equal to one if the company filed a Form 10-K restatement in year <i>t</i> , and 0 otherwise.
<i>StdRet</i>	= The standard deviation of daily abnormal stock returns for the 250 trading day period ending two trading days before the 10-K release date. Abnormal stock returns are calculated using the error term from the market model, with a firm-specific coefficient on market returns.

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**APPENDIX B**  
**AuditAnalytics Comment Letter Database Tax Issue Taxonomies**

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Accounting Rule and Accounting Disclosure Type Issues

Tax expense/benefit/deferral/other (FAS 109) issues

Tax rate disclosure items

FIN (FASB Interpretation) guidance

FIN 48 issues

SFAS GAAP Standards

APB Opinion No. 23:

APB Opinion No. 23 issues

APB Opinion No. 23 issues, paragraph(s) 12 issues

SFAS 109:

SFAS 109 issues

SFAS 109, paragraph(s) 17 issues

SFAS 109, paragraph(s) 18 issues

SFAS 109, paragraph(s) 20-25 issues

SFAS 109, paragraph(s) 21 issues

SFAS 109, paragraph(s) 23 issues

SFAS 109, paragraph(s) 24 issues

SFAS 109, paragraph(s) 25 issues

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